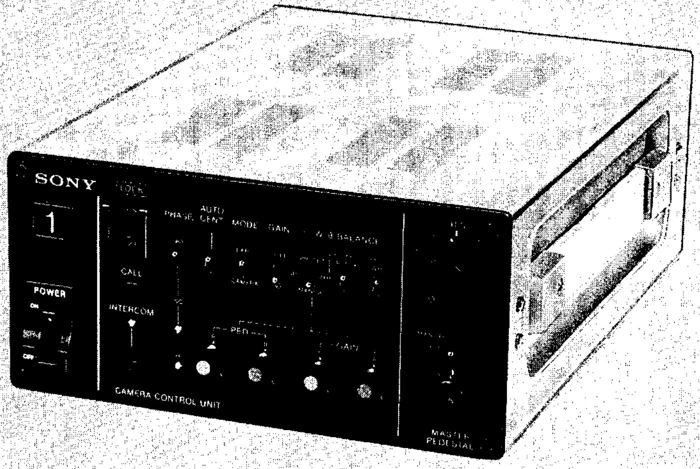
CCU-M3P


SONY
1
POWER
CALL
INTERCOM
AUTO
PHASE CENT
MODE
GAIN
W.B BALANCE
PED
GAIN
CAMERA CONTROL UNIT
MASTER
PEDESTAL

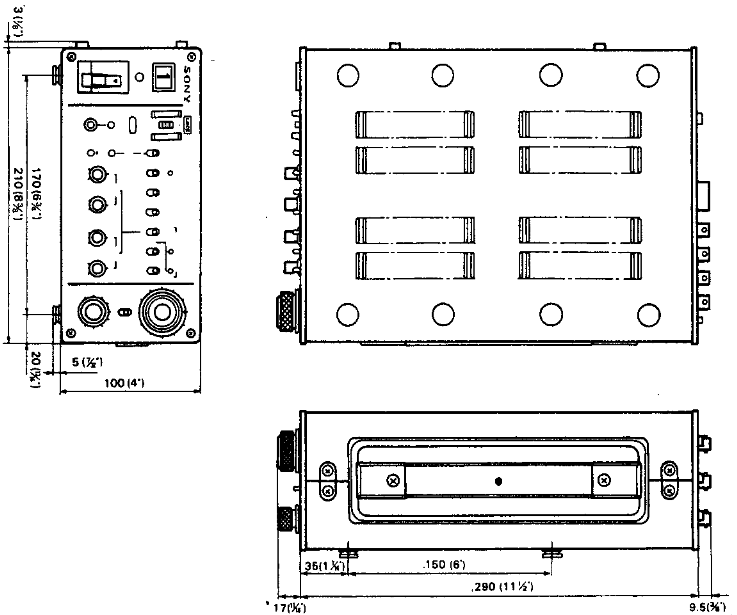
SONY®

SERVICE MANUAL

[illegible] - 21

SPECIFICATIONS

Power requirements	DC 12 V AC 110, 127, 220 or 240 V (selectable), 50/60 Hz with optional Sony CMA-7CE camera adaptor
Power consumption	6 W
Input and output	VIDEO OUT (BNC type) 1.0 Vp-p, VBS, 75 ohms (x1) 1.0/0.7 V p-p, VBS/VB selectable, 75 ohms (×1) (V : 0.7 V, B : 0.3 V, S : 0.3 V) R/B/G (BNC type)(1 each) 0.7 V p-p, 75 ohms SYNC OUT 4V p-p, 75 ohms, negative GEN LOCK IN/OUT (BNC type) VBS or black burst (1 V p-p or 0.3 V p-p), loop-through RETURN VIDEO IN/OUT (BNC type) VBS, 1 V p-p, loop-through CAMERA (14 pin, Q type) DC IN (DIN 4 pin) TALLY/INTERCOM (DIN 4 pin) VF (DIN 8 pin) INTERCOM (mini intercom jack)
Remote control items	Iris (auto/manual) White balance (auto/manual/preset) Black balance (auto/manual) Gain select R/B pedestal R/B gain Master pedestal SC phase H phase Auto centering COLOR BAR/CAMERA Tally/intercom Power
Operating temperature	−10°C to +45°C (14°F to 113°F)
Storage temperature	−20°C to +50°C (−4°F to +122°F)
Dimensions	210 × 105 × 290 mm (w/h/d) (8 3/8 × 4 7/32 × 11 1/2 inches) not including projecting parts and controls
Weight	3.92 kg (6 lb 13 onces)



Unit: mm (inches)

Accessories supplied

Connecting cable CCDQ-0.6 (for connecting the CMA-7CE camera adaptor)	1
Tally indication segments	1 set

RECOMMENDED EQUIPMENT AND ACCESSORIES

Extension camera cable
  CCQ-10AM (10 m, 33 feet), CCQ-25AM (25 m, 83 feet), CCQ-50AM (50m, 166 feet), CCQ-100AM (100 m, 333 feet)
Color video camera DXC-M3 series
Portable video cassette recorder VO-4800PS
Special-effects generator SEG-2000AP/APM
Tally/intercom cable CCDD-2.5
Intercom headset DR-100
Rack mounting brackets RMM-1800

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SECTION 1
GENERAL DESCRIPTION

1-1. FEATURES

Compact size and light weight
The unit is compact and lightweight for maximum handling ease when using the video camera outdoors. All the operation and adjustment functions are housed in a single cabinet.

AC/DC 2-way power operation
The unit can be powered by ac power when the CMA-7CE camera adaptor (optional) is used, and also by the BP-60 battery pack (optional).

Total remote control
The unit allows you to remotely control the camera: the automatic/manual white and black balance, automatic/manual lens iris, output level adjustment, centering adjustment and pedestal level adjustment.

Gen lock
Gen lock with external signals is possible by connecting VBS or black burst signals to the GEN LOCK IN connector. The difference between the horizontal phases and subcarrier phases of the gen-lock reference signal and the output signal can be adjusted.

R, B, G outputs
Besides VBS and VBS/VB selectable outputs, R, B and G video signals are output for a chroma keyer or a RGB video monitor.

Built-in cable compensator
This unit automatically compensates for the loss caused by camera cable extensions up to 100m (when using the CMA-7CE camera adaptor or when the camera and this unit are powered by their own power sources).

Return video
The video signal from a connected VTR, special-effects generator, etc. can be monitored on the camera viewfinder screen.

Tally/Intercom
Communication among the operator of this unit, the camera operator and the operator of the control console is possible.

Rack mounting
It is possible to mount the CCU-M3P/PM, a DXF-40CE viewfinder and a CMA-7CE camera adaptor into a 19-inch standard rack.

1-2. PRECAUTIONS

On safety
- Operate the unit only on 12 V dc. For ac operation, use the CMA-7CE camera adaptor (optional) only. Do not use any other equipment.
For battery operation, use the BP-60 battery pack only. Do not use any other battery pack.
- Should any solid object or liquid fall into the cabinet, turn off the unit and have it checked by qualified personnel before operating it any further.

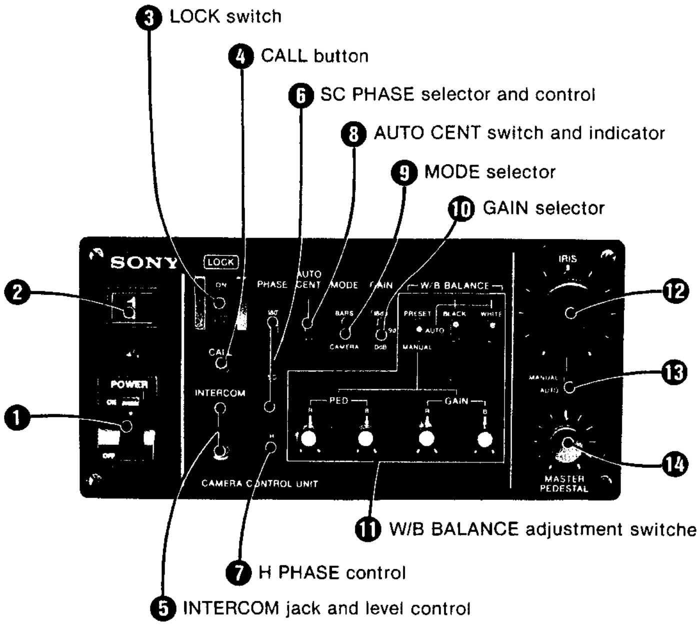
On installation
- Do not install the unit near heat sources such as radiators or air ducts or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- Keep the unit away from equipment with strong magnets, such as speakers.

On cleaning
Clean the cabinet, panel and controls with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent, such as alcohol or benzine, which might damage the finish.

On repacking
Do not throw away the carton and packing materials. They make an ideal container in which to transport the unit. When shipping the unit to another location, repack it as illustrated on the carton.

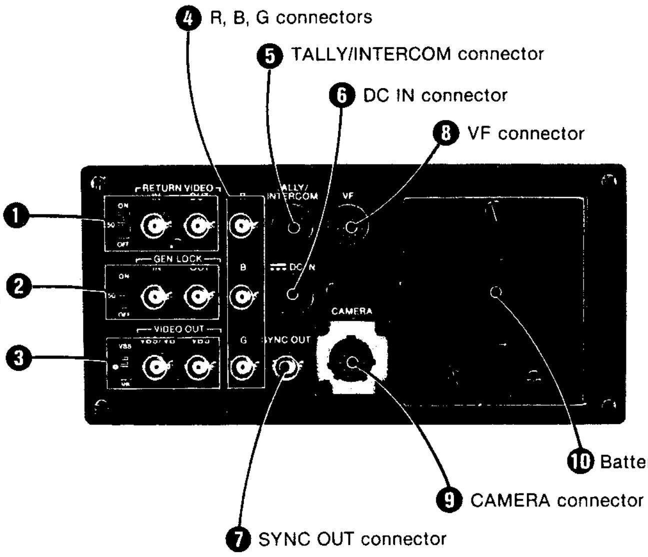
1-3. LOCATION OF PARTS AND CONTROLS

Control panel


SONY
LOCK
ON
CALL
INTERCOM
POWER
ON
OFF
PHASE
AUTO CENT
MODE
GAIN
W/B BALANCE
BARS
CAMERA
0dB
PRESET
BLACK
WHITE
AUTO
MANUAL
PED
GAIN
R
B
CAMERA CONTROL UNIT
IRIS
MANUAL
AUTO
MASTER PEDESTAL

❶ POWER switch and lamp
❷ Tally lamp
❸ LOCK switch
❹ CALL button
❺ INTERCOM jack and level control
❻ SC PHASE selector and control
❼ H PHASE control
❽ AUTO CENT switch and indicator
❾ MODE selector
❿ GAIN selector
⓫ W/B BALANCE adjustment switches and indicators
⓬ MANUAL IRIS control
⓭ MANUAL/AUTO IRIS adjustment selector
⓮ MASTER PEDESTAL control

Connector panel


RETURN VIDEO
ON
50
OFF
GEN LOCK
VIDEO OUT
VBS
VB
R
B
G
TALLY/INTERCOM
VF
DC IN
SYNC OUT
CAMERA

❶ RETURN VIDEO connectors and 75Ω termination switch
❷ GEN LOCK connectors and 75Ω termination switch
❸ VIDEO OUT connectors and VBS/VB selector
❹ R, B, G connectors
❺ TALLY/INTERCOM connector
❻ DC IN connector
❼ SYNC OUT connector
❽ VF connector
❾ CAMERA connector
❿ Battery pack compartment

CONTROL PANEL

❶ POWER switch and lamp
Press the ON side of this switch to turn on the power to this unit. The pilot lamp will light, indicating that the power is on. This lamp blinks to warn that the battery connected to the CCU-M3P/PM is nearly discharged.

❷ Tally lamp
When the picture of the camera paired with this unit is chosen by the special-effects generator (SEG-2000AP/APM, etc.), this lamp and camera's tally lamp light up to indicate recording.
The tally lamp also lights up when the CALL button of this unit is pressed.

❸ LOCK switch
After all the necessary adjustments on this unit are complete, set this switch to ON to have the settings held. The adjustments will not change even if the controls are moved by mistake.
Always set this switch to OFF after turning off the unit.

❹ CALL button
Press to call the camera operator. The tally lamp of the viewfinder connected to the camera and the tally lamp of this unit light up while this button is pressed.

❺ INTERCOM jack (mini intercom jack) **and level control**
Connect a headset, such as the Sony DR-100, to this jack to communicate among the camera, camera control unit and control console. The sound volume at the headset can be adjusted by turning the level control with a small screwdriver.

❻ SC PHASE (subcarrier phase) selector and control
To synchronize this unit and the connected camera with an external sync signal (gen-lock input), adjust the SC phase.

SC PHASE selector
To switch the SC phase by 180°, set the selector to the opposite position.

SC PHASE control
To adjust the SC phase continuously within 180°, turn this control.

❼ H PHASE (horizontal phase) control
To synchronize this unit and connected camera with an external sync signal (gen-lock input), adjust the H phase by turning this control.

❽ AUTO CENT (automatic centering) switch and indicator
For the automatic centering adjustment, point the camera at an appropriate object and press this switch down. (The switch automatically returns to its original position when released.)
The indicator lights up when the centering is adjusted and will go off after about 5 seconds. If the centering cannot be adjusted, the indicator will blink. For details, refer to page 14.

❾ MODE selector
Select the output signal of the CCU-M3P/PM.

BARS: The color bar signal will be output from the VIDEO OUT and R, B, G connectors.

CAMERA: The signal picked up by the camera will be output from the VIDEO OUT and R, B, G connectors.

❿ GAIN selector
Generally set this selector to "0dB". When the selector is set to "9 dB" or "18 dB", the video output level will be raised by 9 dB or 18 dB, respectively.

⓫ W/B BALANCE adjustment switches and indicators
PRESET/AUTO/MANUAL selector

PRESET: The white balance is adjusted at the factory to 3200°K with the color temperature filter selector set to "1", the color temperature of an iodine lamp. Use this position when you have no time to adjust the balance.

AUTO: For automatic white and black balance adjustment using the BLACK and WHITE switches. The adjusted value is memorized in the camera.

MANUAL: For manual white and black balance adjustment using the MANUAL GAIN and MANUAL PED controls.

BLACK switch and indicator
To adjust the black balance automatically, press this switch down with the PRESET/AUTO/MANUAL selector set to AUTO or PRESET.
The indicator will light up for about 5 seconds after the black balance adjustment is complete.

WHITE switch and lamp
To adjust the white balance automatically, press this switch down with the PRESET/AUTO/MANUAL selector set to AUTO.
The indicator will light up for about 5 seconds after the white balance adjustment is complete. The indicator will blink if the white balance cannot be adjusted for some reason. For details, refer to page 12.

MANUAL PED (pedestal) controls
Adjust the red and blue pedestal levels separately with these controls when the PRESET/AUTO/MANUAL selector is set to MANUAL.

MANUAL GAIN controls
Adjust the red and blue gains separately with these controls when the PRESET/AUTO/MANUAL selector is set to MANUAL.

⓬ MANUAL IRIS control
For manual iris adjustment, turn this control with the MANUAL/AUTO selector set to MANUAL. Adjustment can be made from open to closed.
During the auto iris mode, the iris can be adjusted slightly by turning this control.

⓭ MANUAL/AUTO IRIS adjustment selector

MANUAL: The iris can be manually adjusted with the IRIS control.

AUTO: The iris will be automatically adjusted depending on the brightness of the subject.

⓮ MASTER PEDESTAL control
Turn this control to adjust the master pedestal level.

CONNECTOR PANEL

❶ **RETURN VIDEO connectors** (BNC type) **and 75Ω termination switch**
IN connector
Connect to the video output from a control console or a VTR to feed the return video signal to the camera viewfinder.
The return video signal to be fed must be synchronized with the video input signal from the camera.

OUT connector
The return video input signal to the IN connector is directly output from this connector (a loop-through configuration).
To supply the return video signal to another video unit, connect this connector to the return video input connector of the unit.

75Ω termination switch
When only the RETURN VIDEO IN connector is used, set this switch to ON.
When both the RETURN VIDEO IN and OUT connectors are used (a loop-through configuration), set this switch to OFF.

❷ **GEN LOCK connectors** (BNC type) **and 75Ω termination switch**
IN connector
Connect a black burst or VBS signal for reference to synchronize the camera with an external sync signal.
When a reference signal is not connected, the camera is automatically switched to the internal sync mode.

OUT connector
The reference input signal to the IN connector is directly output from this connector (a loop-through configuration).
To supply the reference signal to another video unit, connect it to the gen-lock input connector of the unit.

75Ω termination switch
When only the GEN LOCK IN connector is used, set this switch to ON.
When both the GEN LOCK IN and OUT connectors are used (a loop-througth configuration), set this switch to OFF.

❸ **VIDEO OUT connectors** (BNC type) **and VBS/VB selector**
VBS/VB connector and VBS/VB selector
Either the VBS (video, burst, sync) or the VB (video, burst) signal is output from this connector. The signal to be output will be selected by the VBS/VB selector.
Connect to a video input connector of video equipment such as a VTR, special-effects generator, chroma keyer, etc.

VBS connector
A VBS signal is output from this connector. Connect to a video input connector of video equipment such as a VTR, special-effects generator, chroma keyer, etc.

❹ **R, B, G connectors** (BNC type)
R, B and G video signals from the camera are output from these connectors. Connect to the R, B and G input connectors of a monitor or a chroma keyer.

❺ **TALLY/INTERCOM connector** (DIN 4 pin)
Connect to the tally/intercom connector of a control console, chroma keyer, special-effects generator, etc.

❻ **DC IN connector** (DIN 4 pin)
Connect an ac power adaptor CMA-7CE here. For details, see page 7.

❼ **SYNC OUT connector** (BNC type)
The sync signal from the camera (negative, 4V p-p) is output from this connector. Connect to the sync input connector of the RGB monitor.

❽ **VF (viewfinder) connector** (8 pin)
By connecting an optional viewfinder, such as the DXF-40CE or PVM-4000P, to this connector, it is possible to monitor the camera picture.

❾ **CAMERA connector** (14 pin)
Connect to the VTR/CCU/CMA connector of the DXC-M3 series camera.

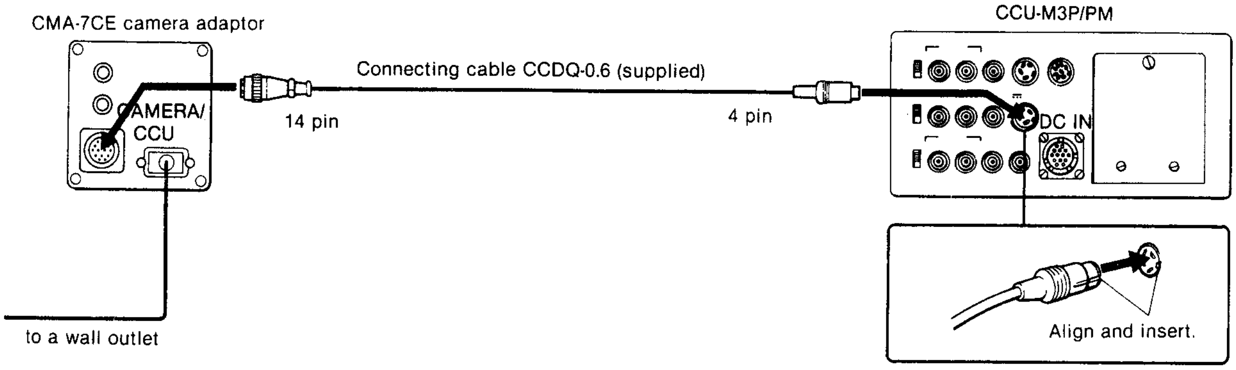
❿ **Battery pack compartment**
Install a BP-60 battery pack (optional) to operate the unit on dc power.

1-4. POWER SOURCES

When connecting cables, set the POWER switch to OFF.

This camera control unit (CCU) can be powered from two different sources: ac adaptor and battery pack.

AC ADAPTOR

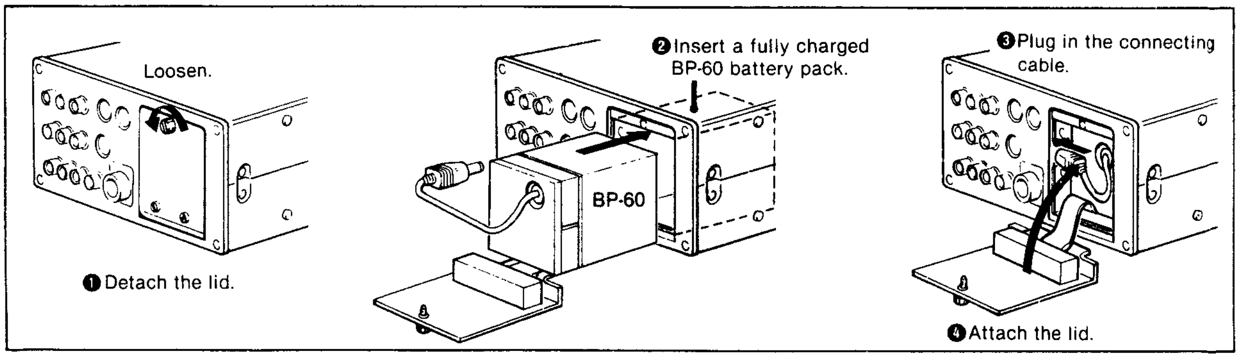

CMA-7CE camera adaptor
CCU-M3P/PM
Connecting cable CCDQ-0.6 (supplied)
CAMERA/CCU
14 pin
4 pin
DC IN
to a wall outlet
Align and insert.

When the ac camera adaptor is connected to the DC IN jack, the internal battery (if present) is automatically disconnected.

Both the camera and the CCU are operated by ac power when the battery adaptor of the camera is detached.

BATTERY PACK

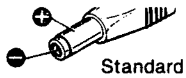
Use the BP-60 battery pack (optional) when recording outdoors.
Always operate the camera with its own battery pack when operating the CCU on battery.
If the camera is not powered by its own power source, the camera will not function correctly.


Loosen.
❶ Detach the lid.
❷ Insert a fully charged BP-60 battery pack.
BP-60
❸ Plug in the connecting cable.
❹ Attach the lid.

Battery life
A fully charged battery will allow the CCU to operate continuously for about 5 hours at a normal temperature.

Battery alarm
- When the CCU is operated with the battery pack, the green pilot lamp blinks several minutes when the voltage of the battery pack falls below its rated value to warn that the battery must be replaced. If the battery is used further, the CCU will automatically shut down and the lamp will go off.
- When the pilot lamp starts blinking, the controls on the front panel cannot be adjusted. Replace the battery with a fully charged one.
- The battery alarm can also be seen in camera's viewfinder.

Do not use any battery pack other than Sony's product. Polarity of the battery plug may differ with the manufacturers.

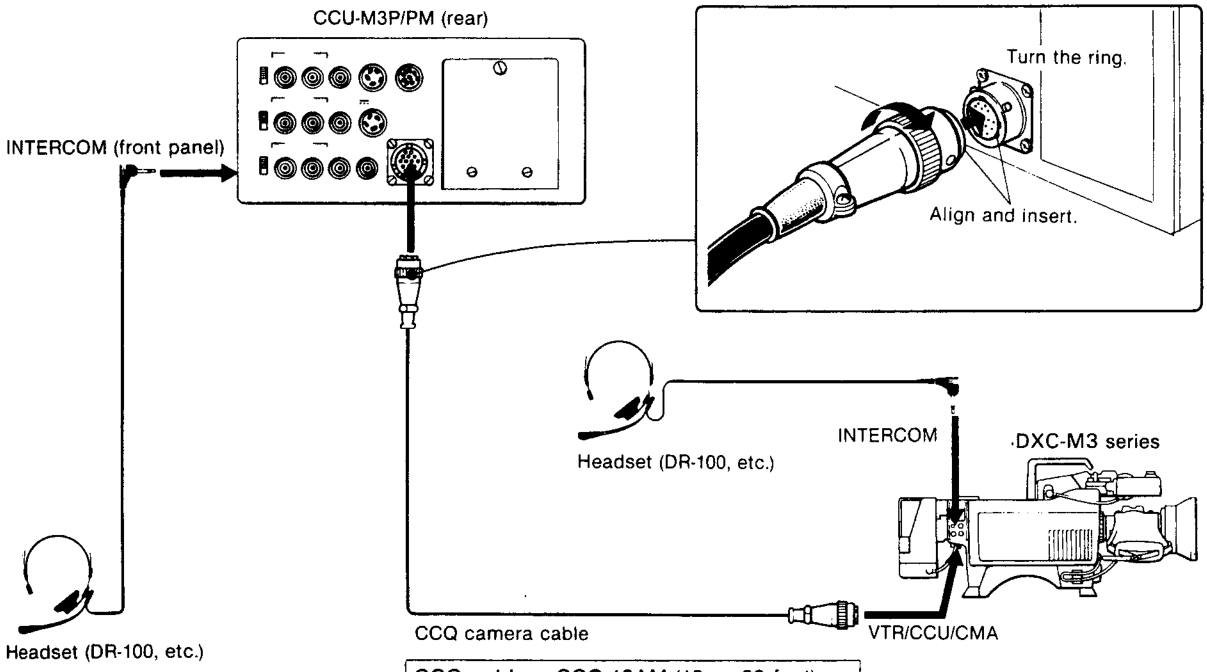


Standard polarity of Sony battery pack

1-5. CONNECTION EXAMPLES

When connecting cables, set the POWER switch to OFF.

CAMERA CONNECTION


CCU-M3P/PM (rear)
INTERCOM (front panel)
Turn the ring.
Align and insert.
Headset (DR-100, etc.)
INTERCOM
DXC-M3 series
Headset (DR-100, etc.)
CCQ camera cable
VTR/CCU/CMA

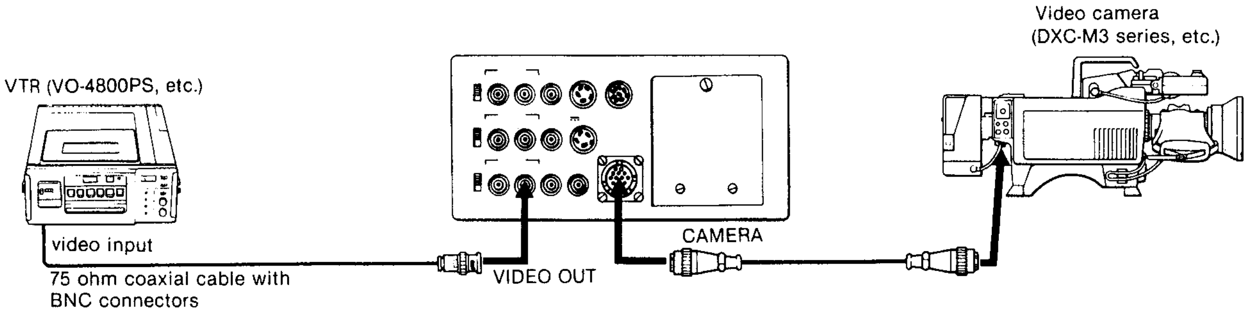
CCQ cable: CCQ-10AM (10 m, 33 feet)
CCQ-25AM (25 m, 83 feet)
CCQ-50AM (50 m, 166 feet)
CCQ-100AM (100 m, 333 feet)

Notes on the camera cable length
The camera cable can be extended up to 100 m (333 feet) except in the case mentioned below.

- If the PVM-4000P color video monitor is connected to the DXC-M3P/PM, the length of the camera cable is a maximum of 50 m (166 feet).

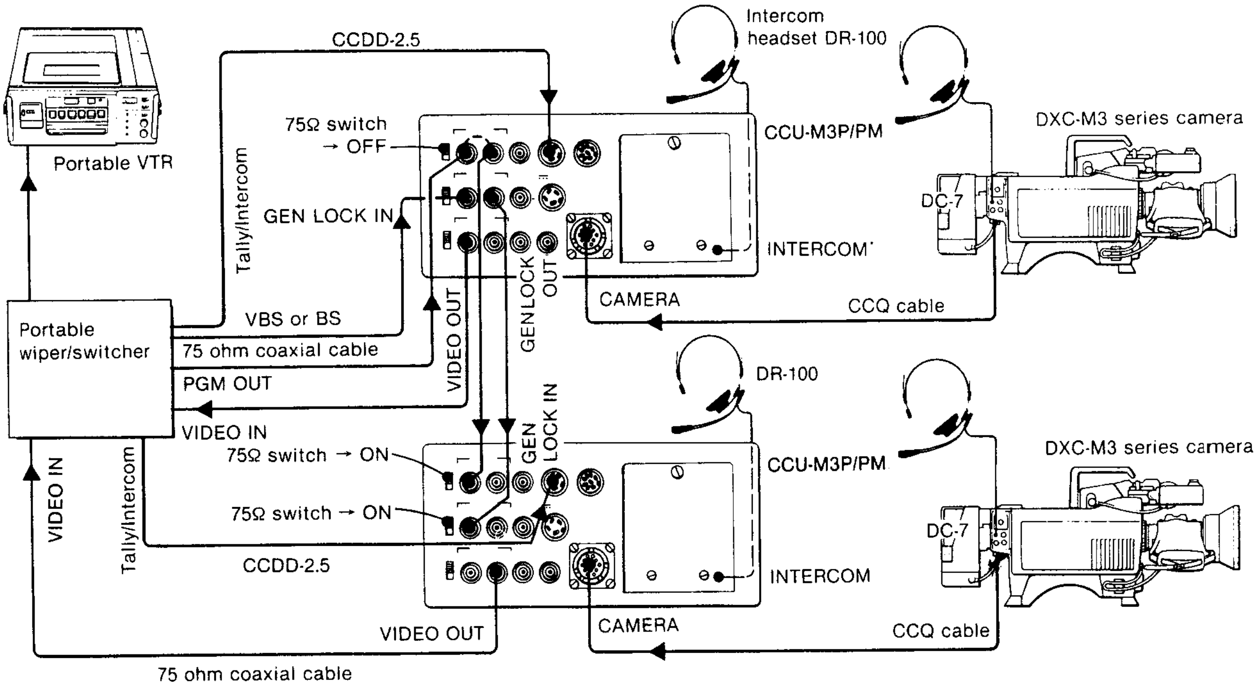
CONNECTION EXAMPLES

Using a single camera


Video camera
(DXC-M3 series, etc.)
VTR (VO-4800PS, etc.)
video input
75 ohm coaxial cable with
BNC connectors
VIDEO OUT
CAMERA

Using two or more cameras

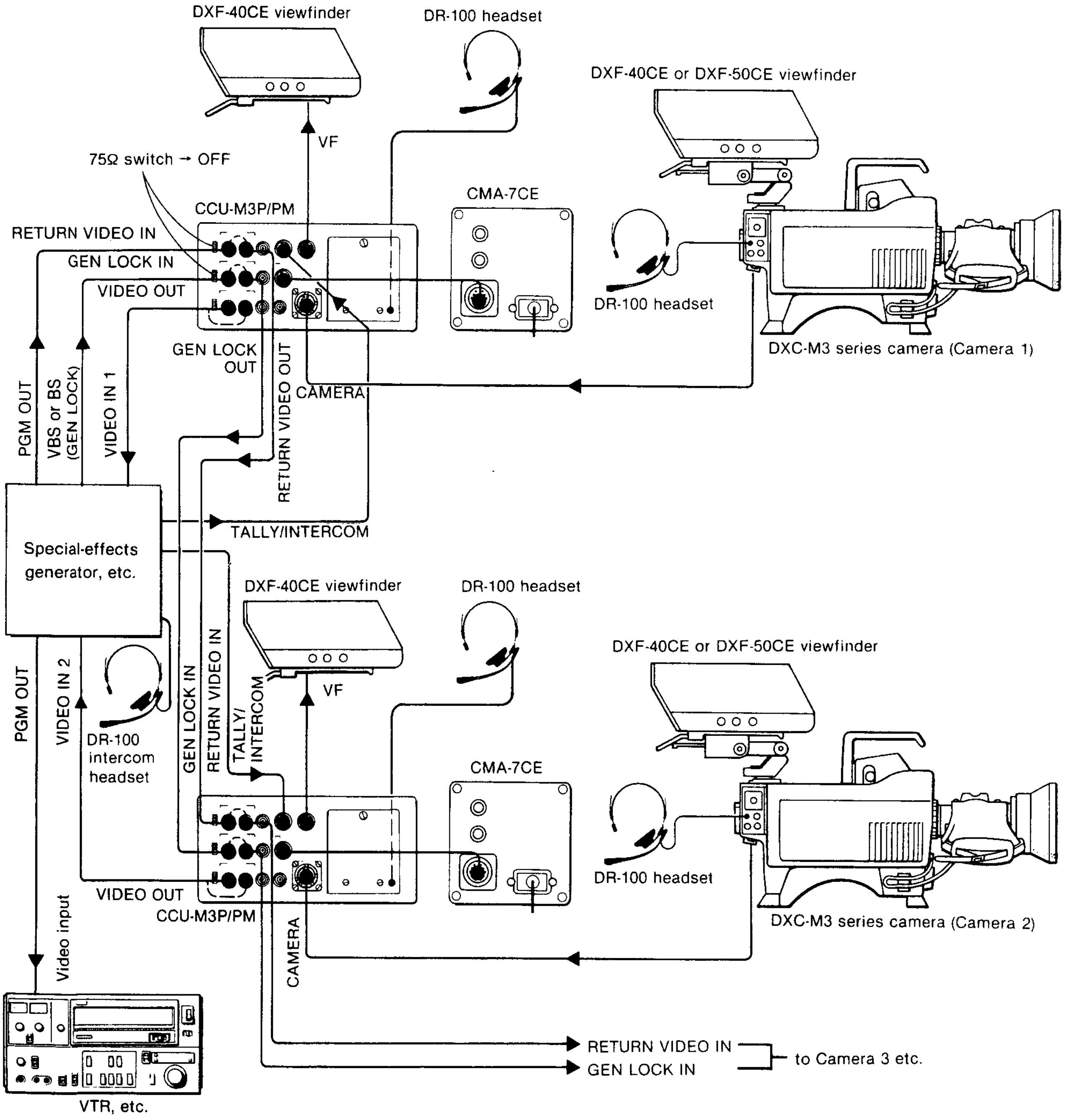
Using a switcher :


Intercom
headset DR-100
CCDD-2.5
75Ω switch
→ OFF
Portable VTR
Tally/Intercom
GEN LOCK IN
CCU-M3P/PM
DXC-M3 series camera
DC-7
INTERCOM
GEN LOCK OUT
VIDEO OUT
CAMERA
CCQ cable
VBS or BS
Portable
wiper/switcher
75 ohm coaxial cable
PGM OUT
VIDEO IN
DR-100
GEN LOCK IN
75Ω switch → ON
75Ω switch → ON
VIDEO IN
Tally/Intercom
CCU-M3P/PM
DXC-M3 series camera
DC-7
CCDD-2.5
INTERCOM
VIDEO OUT
CAMERA
CCQ cable
75 ohm coaxial cable

Using a special effects generator:

The diagram below shows a system using two DXC-M3 series cameras, two CCU-M3P/PM camera control units and an SEG-2000AP/APM special-effects generator. In this configuration, special effects, such as switching, mixing, wiping, keying and color matting, can be performed.

Besides these effects, by connecting a CRK-2000P/PM universal chroma keyer and/or the WEX-2000P/PM wipe pattern extender, you can obtain a wider variety of special effects.


DXF-40CE viewfinder
DR-100 headset
DXF-40CE or DXF-50CE viewfinder
VF
75Ω switch → OFF
CCU-M3P/PM
CMA-7CE
RETURN VIDEO IN
GEN LOCK IN
VIDEO OUT
DR-100 headset
DXC-M3 series camera (Camera 1)
GEN LOCK OUT
RETURN VIDEO OUT
CAMERA
PGM OUT
VBS or BS (GEN LOCK)
VIDEO IN 1
Special-effects generator, etc.
TALLY/INTERCOM
DXF-40CE viewfinder
DR-100 headset
DXF-40CE or DXF-50CE viewfinder
PGM OUT
VIDEO IN 2
DR-100 intercom headset
GEN LOCK IN
RETURN VIDEO IN
TALLY/ INTERCOM
VF
CMA-7CE
DR-100 headset
VIDEO OUT
CCU-M3P/PM
DXC-M3 series camera (Camera 2)
CAMERA
Video input
VTR, etc.
RETURN VIDEO IN
GEN LOCK IN
to Camera 3 etc.

Notes when using the PVM-4000P color video monitor

- When the PVM-4000P color video monitor is to be connected to the CCU-M3P/PM, we recommend operating the PVM-4000P by its own power source because it requires a great deal of power. When operating the PVM-4000P by its own power source, connect the VIDEO OUT connector of the CCU-M3P/PM to the VIDEO IN connector of the PVM-4000P to monitor the video signal.
- If the PVM-4000P color video monitor is connected to the VF connector of the CCU-M3P/PM, only the viewfinder supplied to the DXC-M3 series camera (1.5-inch, monocrhrome) can be connected to the DXC-M3 series camera.
- If the PVM-4000P color video monitor is connected to the DXC-M3 series camera, the length of the camera cable is a maximum of 50 m (166 feet).

Notes on connections for gen-lock and return video

When using two or more cameras, connections should be made so that all the cameras will lock to the same reference signal (i.e. the GEN LOCK OUT connector of a CCU should be connected to the GEN LOCK IN connector of another CCU) as is shown in the diagram on the previous page.

The return video signal from a control console or a VTR can be supplied to each camera viewfinder by connecting the CCU's RETURN VIDEO IN and OUT connectors in the same way.

- Be sure to set each 75Ω termination switch to OFF when the loop-through input and output of the GEN LOCK or RETURN VIDEO connectors are used. Set them to ON when only the input connector is used.

1-6. OPERATIONS

OPERATIONAL SEQUENCE

For details on each adjustment, please refer to the corresponding item.

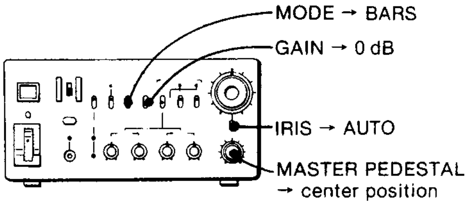
Make sure that the LOCK switch of the CCU-M3P/PM is set to OFF.

↓

Turn on the CCU-M3P/PM and the connected equipment.
After the power is turned on, wait for several seconds until the camera is controllable by the CCU-M3P/PM.

↓

Set the switches and controls of the CCU-M3P/PM as illustrated below.



When only one camera is used

When two or more cameras are used

Adjust the H and SC phases of all cameras.

↓

Adjust the color of the monitor using color bar signals supplied from the camera.

↓

Set the MODE selector to CAMERA.

↓

Set the FILTER selector of the DXC-M3 series camera to the appropriate position.

↓

Adjust the white and black balance.

↓ If necessary, you can adjust the gain, iris, master pedestal level and centering.

Start shooting.
During shooting, you can communicate with the camera operator or see the program output signal from the SEG, VTR, etc.

Which setting takes precedence, the one made by the camera or by the CCU?

When the CCU-M3P/PM is connected to the camera, all the settings adjustable by the CCU-M3P/PM, except for centering and white/black balance adjustments, can be made on the CCU-M3P/PM regardless of the settings of the switches on the camera.

- For the centering adjustment, when the AUTO CENT switch of the camera is set to PRESET, centering cannot be adjusted automatically on the CCU-M3P/PM.
When the AUTO CENT switch of the camera is set to the position other than PRESET, the last setting made by either the CCU or the camera takes precedence.
- For the white balance adjstment, when the W/B BALANCE selector of the CCU-M3P/PM is set to AUTO or MANUAL, the last setting made by either the CCU or the camera takes precedence. When the W/B BALANCE selector of the CCU-M3P/PM is set to PRESET, the camera operates on the preset white balance value.
- For the black balance adjustment, the last setting made by either the CCU or the camera takes precedence regardless of the settings on the other unit.

WHITE BALANCE AND BLACK BALANCE ADJUSTMENTS

The white balance and black balance should be correctly adjusted for lifelike color reproduction and a clear picture. The adjustment should be made under the same lighting conditions as those under which the recording will be made.

Automatic adjustment

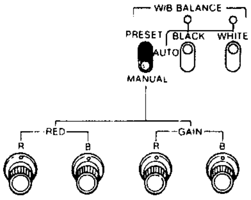
1 Set the FILTER selector of the camera to the position corresponding to the lighting conditions.
2 Point the camera at a white subject (white pattern, white wall, etc.) and zoom up on it. (Refer to the instruction manual of the camera).
3 Set the W/B BALANCE PRESET/AUTO/MANUAL selector of the CCU-M3P/PM to AUTO.
4 Press the BLACK switch down. The switch automatically returns to its original position when it is released.
The lamp above the BLACK switch lights for about 5 seconds when the black balance is adjusted.
   - If the lamp does not light after about ten seconds, press the BLACK switch again.
5 Press the WHITE switch down. The switch automatically returns to its original position when it is released.
The lamp above the WHITE switch lights for about 5 seconds when the white balance is adjusted.
   - If the lamp does not light after about ten seconds, press the WHITE switch down again.
   - If the lamp blinks, check the camera viewfinder screen to find out the cause and change the FILTER selector position of the camera, then try the white balance adjustment again.

NOTE:
When the lighting condition of the object is changed, adjust the white balance only. Readjustment of the black balance is not required.

Manual adjustment

For fine adjustment of the white balance and the black balance, we recommend manual adjustment.

1 Set the FILTER selector of the camera to the position corresponding to the lighting conditions.
2 Set the W/B BALANCE PRESET/AUTO/MANUAL selector of the CCU-M3P/PM to MANUAL.



3 Point the camera at a black subject, or, if a waveform monitor is used, close the iris by setting the IRIS selector to MANUAL and turning the IRIS control fully counterclockwise.
4 Turn the MANUAL PED R and B controls to adjust the black balance so that the black part of the picture on the color monitor screen becomes black. If a waveform monitor is used, turn the controls by checking the waveform.
5 Point the camera at a white subject (white pattern, white wall, etc.) and zoom up on it. (Refer to the instruction manual of the camera).
6 Turn the MANUAL GAIN R and B controls to adjust the white balance so that the white subject on the color monitor screen is pure white. If a waveform monitor is used, turn the controls by checking the waveform.

Painting

Using the MANUAL GAIN and MANUAL PED controls, a picture can be colored to obtain a special effect. For example, a picture can be made reddish to indicate sunset or bluish to show early morning. This is called "painting".
Monitoring the picture on the color monitor screen, turn the MANUAL GAIN and MANUAL PED controls so that the desired color is obtained.

If you want to start recording without adjusting the white balance and the black balance

Set the FILTER selector of the camera to the appropriate position, and set the W/B BALANCE PRESET/AUTO/MANUAL selector to PRESET.
An approximate balance will be obtained.

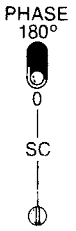
H AND SC PHASES ADJUSTMENT

When two or more cameras are used, supply the same reference signal to all cameras and adjust each camera so that the picture tone of all cameras will be the same.

If the phase check indication is available

If CCU-M3P/PM camera control units are connected to a special-effects generator such as the SEG-2000AP/APM or SEG-2000P/PM, or the CRK-2000P/PM universal chroma keyer, the phase check indication is available.

1 Turn on the PHASE INDICATION switch of the connected special-effects generator or the chroma keyer.
2 Adjust the horizontal phase by turning the H PHASE control screw of the CCU-M3P/PM.
3 Adjust the subcarrier phase by using the SC PHASE 180°/0° selector and the SC PHASE control screw of the CCU-M3P/PM.



For details on how to adjust the SC phase and H phase, refer to the instruction manual of the connected special-effects generator or the chroma keyer.

If the phase check indication is not available

Use a waveform monitor or an oscilloscope for the H phase adjustment and a vectorscope for the SC phase adjustment. To adjust the cameras, pick one camera as the reference camera and adjust all other cameras to it. For example, if Camera 1 is picked as the reference camera, first precisely adjust Camera 1 to obtain the best possible picture, and then adjust the picture of Camera 2 to Camera 1, the picture of Camera 3 to Camera 1, and so on.
When adjusting the SC phase, it is convenient to display the color bars of the pair of cameras to be adjusted on a monitor at the same time using a wiper or a special-effects generator.
For details, refer to the instruction manual of the connected wiper or special-effects generator.

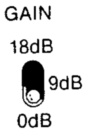
VIDEO MONITOR ADJUSTMENT

When a color video monitor is used for montoring a picture, adjust the color of the monitor using color bar signals supplied from the camera.

1 Set the MODE selector on the CCU to BARS. Color bar signals are displayed on the monitor screen.
2 Adjust the color and hue controls on the monitor while viewing the color bars on the screen.
3 Set the MODE selector to CAMERA after the adjustment is finished.

VIDEO OUTPUT LEVEL ADJUSTMENT

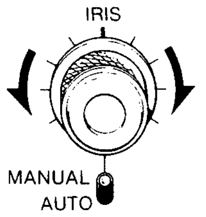
If a clear picture cannot be obtained because of insufficient lighting, raise the video output level using the GAIN selector.
At the 9 dB position, the level is raised by 9 dB and at the 18 dB position, the level is raised by 18 dB.
Normally set the switch to 0 dB.



IRIS ADJUSTMENT

Automatic adjustment
Set the IRIS MANUAL/AUTO selector to AUTO and the iris will be automatically adjusted to the brightness of the subject.
You can precisely adjust the iris in the automatic iris mode by turning the IRIS control.

Manual adjustment
Set the IRIS MANUAL/AUTO selector to MANUAL and turn the IRIS control to adjust the iris manually.



Manual adjustment may be more effective when recording an object against a bright sky or a scene with high contrast.

MASTER PEDESTAL LEVEL ADJUSTMENT

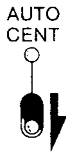
The MASTER PEDESTAL control adjusts the pedestal level of the camera picture. Normally set this control to the center position. When the pedestal level adjustment is required, use the waveform monitor for best result. If the waveform monitor is not available, display the color bar on the monitor and adjust the MASTER PEDESTAL control so that the black and white bars are seen as they are.

MASTER
PEDESTAL

CENTERING ADJUSTMENT

The centering of the R, B and G pickup tubes has been adjusted at the factory, so normally no readjustment will be necessary. If the centering adjustment is required, however, adjust the white balance first, then proceed as follows.

1 Set the AUTO CENT switch on the camera to a position other than PRESET.
2 Set the MANUAL/AUTO IRIS selector of the CCU to AUTO.
3 Shoot the chart supplied with the camera or a test object. For details, refer to the instruction manual of the camera.
4 Press the AUTO CENT switch down. The switch automatically returns to its original position when it is released.

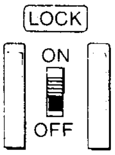


The lamp above the AUTO CENT switch lights for about 5 seconds when the centering is adjusted.

If the lamp blinks
The centering cannot be adjusted because
— the object does not have enough edges and contrast.
— the iris setting is not correct.
— the object is out of focus.
— the object has moved during the adjustment.
Check the above items and try the centering adjustment again.

LOCK FUNCTION

If the LOCK switch is set to ON after all the controls have been adjusted, the adjustment of the controls are held so that even if a control is moved by mistake, the adjustment is not changed. To readjust the controls on the CCU-M3P/PM, set the LOCK switch to OFF.



Note
Set the LOCK switch to OFF after the camera shooting is finished.
If you turn on the CCU-M3P/PM with the LOCK switch set to ON, the camera will not accept any commands from the CCU and the settings on the camera will apply. To apply the CCU setting, set the LOCK switch to OFF.

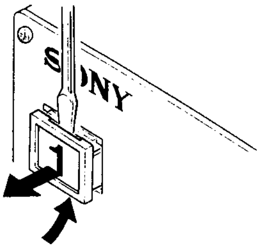
COMMUNICATION WITH A CAMERA OPERATOR OR WITH A CONTROL CONSOLE

When a DR-100 intercom headset (optional) is connected to the INTERCOM jack on the front panel, communication between the CCU and the camera is possible. If the TALLY/INTERCOM connector on the rear panel is connected to a control console, special-effects generator, etc., communication with this equipment is also possible.
To notify the camera operator that the CCU operator wants to talk with him, press the CALL button on the CCU. The REC/TALLY indicator in the viewfinder of the camera will light.
To adjust the volume of the sound at the headset, turn the INTERCOM volume control screw.

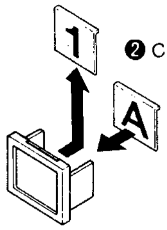
TALLY LAMP

The tally lamp will light when the camera connected to the CCU is selected on the control console or the special-effects generator, or when the CALL button of the CCU is pressed to call the camera operator.
The indication on the tally lamp can be changed by changing the tally lamp indication segments (supplied) as illustrated below.

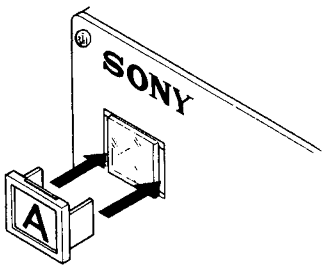
Changing the tally lamp indication



❶ Detach using the screwdriver.



❷ Change the tally indicator (supplied).



❸ Attach.

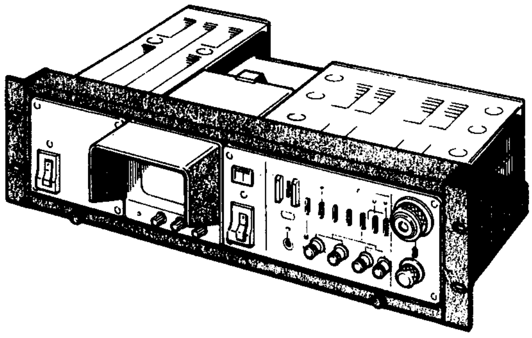
RETURN VIDEO

When the START/RETURN VIDEO switch of the camera is pressed with the VF VIDEO selector of the camera set to AUTO, the return video signal (the signal from the VTR in the record mode or the signal selected on the control console) can be seen on the viewfinder screen.
For details, refer to the instruction manual of the camera.

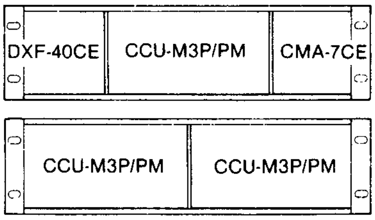
- Return video monitoring is possible on the camera's viewfinder, but is not possible on a viewfinder connected to the CCU.

RACK MOUNT

By using the RMM-1800 rack-mounting brackets, it is possible to install a CCU-M3P/PM, DXF-40CE viewfinder and CMA-7CE camera adaptor into a standard 19-inch rack for a well-organized studio system.

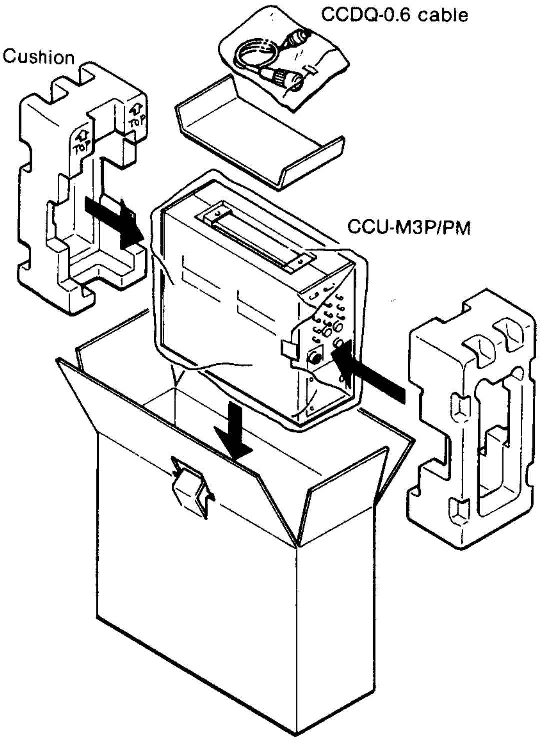


mounting examples



1-7. REPACKING FOR SHIPMENT

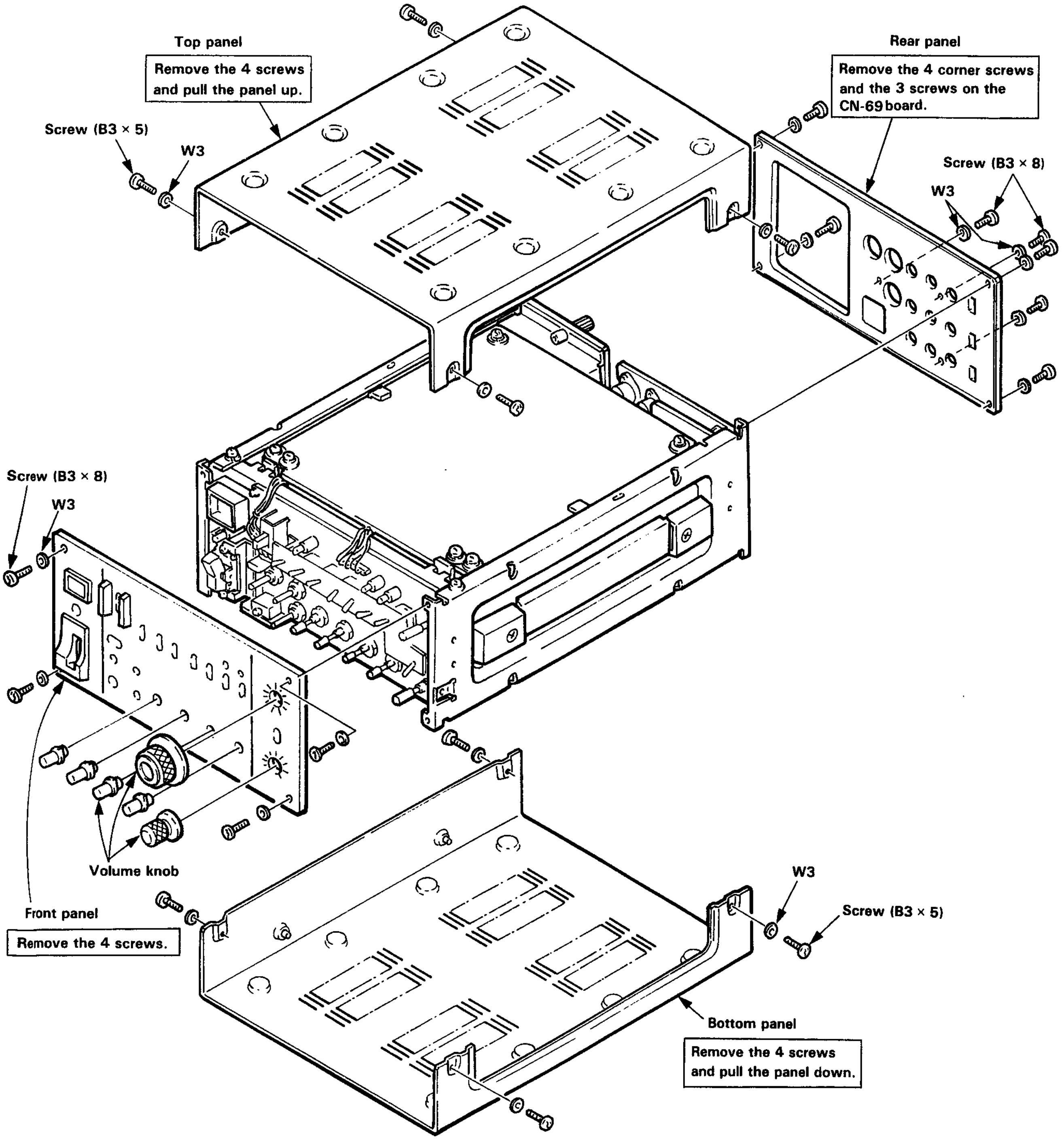
The repacking procedure is subject to change. Refer to the packing instructions on the original carton as well as those shown here.


CCDQ-0.6 cable
Cushion
TOP
CCU-M3P/PM

SECTION 2
SERVICE INFORMATION

2-1. REMOVING COMPONENTS

2-1-1. Removing the Framework

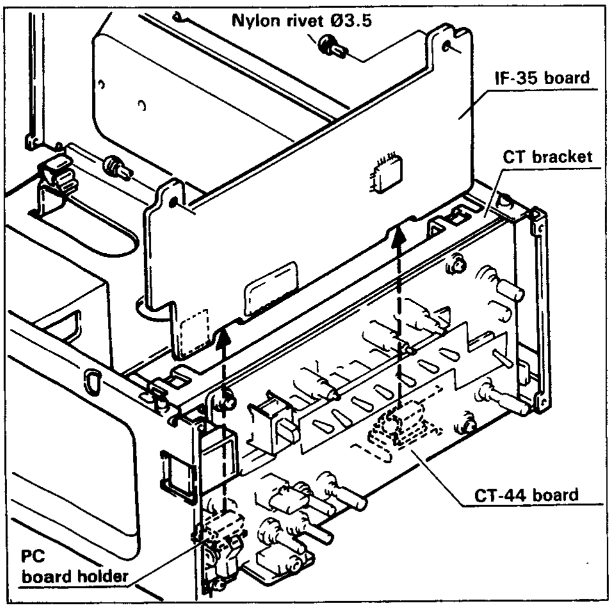

Top panel
Remove the 4 screws and pull the panel up.
Screw (B3 × 5)
W3
Rear panel
Remove the 4 corner screws and the 3 screws on the CN-69 board.
Screw (B3 × 8)
W3
Screw (B3 × 8)
W3
Volume knob
Front panel
Remove the 4 screws.
W3
Screw (B3 × 5)
Bottom panel
Remove the 4 screws and pull the panel down.

2-1-2. Removing the IF-35 and CT-44 boards

- IF-35 board

  Remarks: Remove the PS-27 board first.

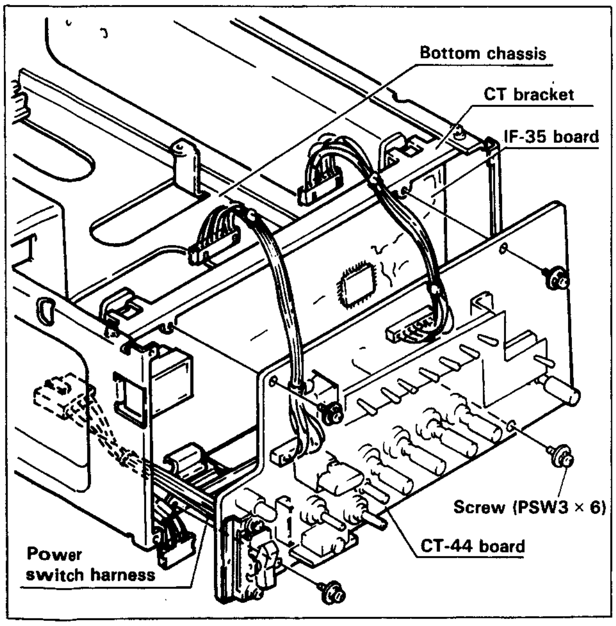
1. Remove the 8 connectors.
2. Remove the 2 nylon rivets.
3. Pull the PC board up and remove it from the PC board holder.


Nylon rivet Ø3.5
IF-35 board
CT bracket
CT-44 board
PC board holder

- CT-44 board

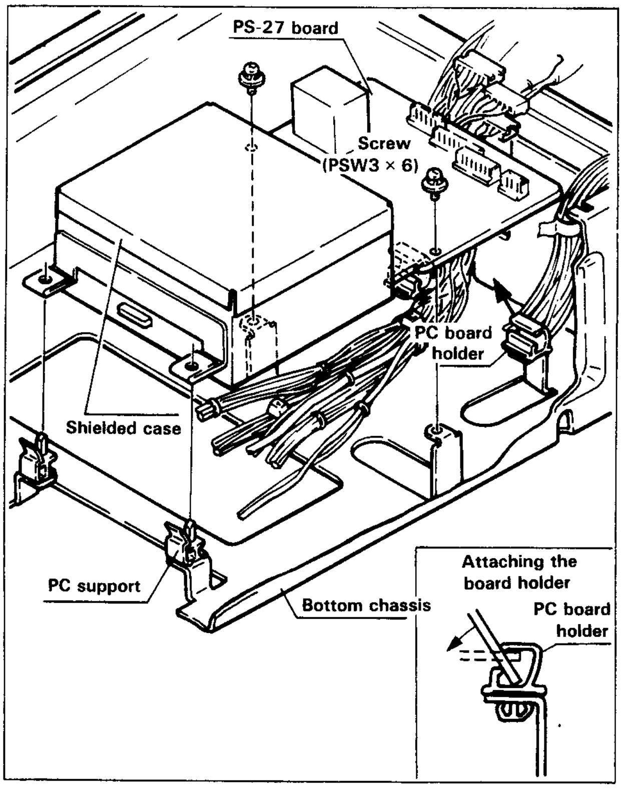
  Remarks: Remove the front panel first.

1. Remove the connector (one).
2. Remove the two connectors connected to the IF-35 board.
3. Remove the 4 screws
4. Move the PC board to the left and pull it out the right side.


Bottom chassis
CT bracket
IF-35 board
Screw (PSW3 × 6)
CT-44 board
Power switch harness

2-1-3. Removing the PS-27 board

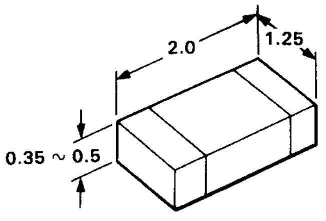
1. Remove the six connectors.
2. Remove the 2 screws.
3. Remove the two PC supports.
4. Remove the two P board holders.


PS-27 board
Screw (PSW3 × 6)
PC board holder
Shielded case
PC support
Bottom chassis
Attaching the board holder
PC board holder

2-2. CHIP COMPONENTS

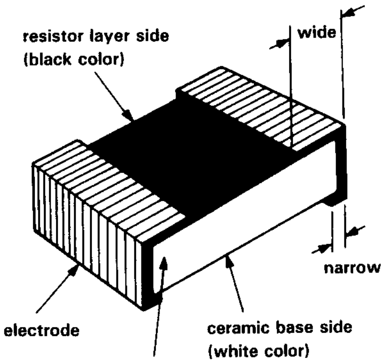
2-2-1. Chip Components

Chip components include resistors, capacitors, transistors, diodes, coil and adjustable resistors.
In this section, the types of resistors "2125", ceramic capacitors, transistors and diodes which are used most frequently will be described.
Dimension of transistors and capacitors.

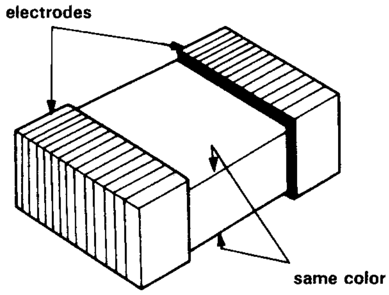

2.0
1.25
0.35 ~ 0.5

(Unit: mm)

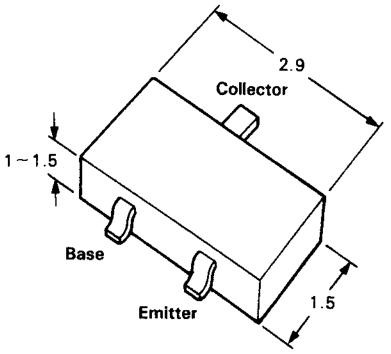
Identification


resistor layer side
(black color)
wide
narrow
electrode
ceramic base side
(white color)

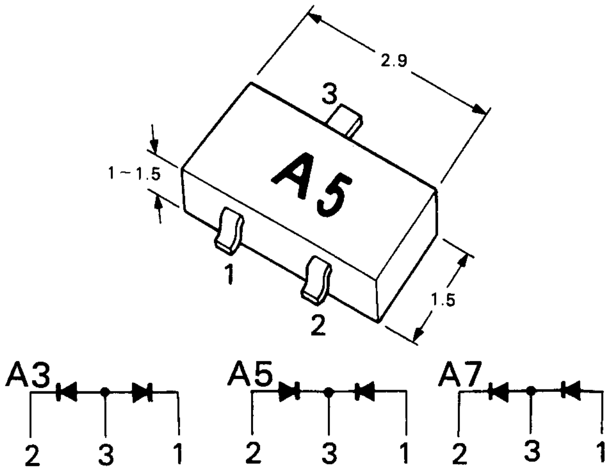
Resistor


electrodes
same color

Laminated Ceramic Capacitor


2.9
Collector
1~1.5
Base
Emitter
1.5

Transistor


2.9
3
1~1.5
A5
1
2
1.5
A3
2
3
1
A5
2
3
1
A7
2
3
1

Diode

2-2-2. Replacing Chip Components

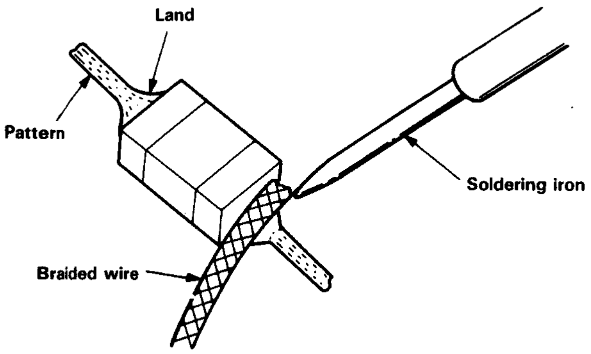
All chip components should be connected and disconnected, using a tapered soldering iron [temperature of the iron tip: less than 280°C (536°F)], a pair of tweezers and braided wire.

Precautions for replacement

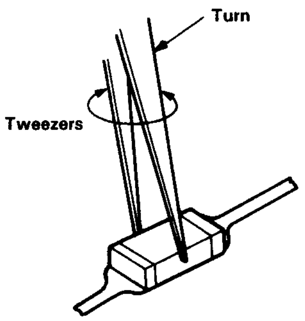
1. Do not disconnect the chip component forcefully. Otherwise, the pattern may peel off.
2. Never re-use a disconnected chip component. Dispose of all old chip components.
3. To protect the chip component, heating time for attaching the component should be within 3 seconds.

○ **Removing chip components**

(1) Removing solder at electrode
Remove the solder at the electrode, using a thin braided wire. Do not remove the solder of the part (chip component) attached adjacent to the electrode.



(2) Disconnecting chip components
Turn the tweezers with the soldering iron alternately applied to both electrodes, and the chip component will be disconnected. Take careful precautions while disconnecting, because if the chip component is forcefully removed the land may peel off.
Never re-use a disconnected chip component.

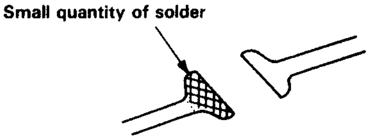


(3) Smoothing the soldered surface
After disconnecting the chip component, remove the solder by using a braided wire to smooth the land surface.

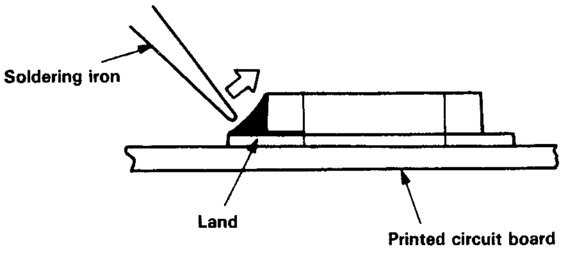
○ **Connecting chip components**

The value of chip components is not displayed on the main body. Take due precautions to avoid mixing new chip components with other ones.

(1) Applying solder to land on one side
Apply a thin layer of solder to the land on one side where the chip component is to be connected. Too much solder may cause bridging.



(2) Speedy soldering
Hold the chip component at the desired position, using tweezers, and apply the soldering iron in the arrow-marked direction. To protect the chip component, heating time should be within 3 seconds.



(3) Speedy soldering of electrode on the other side
Solder the electrode on the other side in the same way as in (2) above.

SECTION 3
ALIGNMENT

3-1. REQUIRED EQUIPMENT

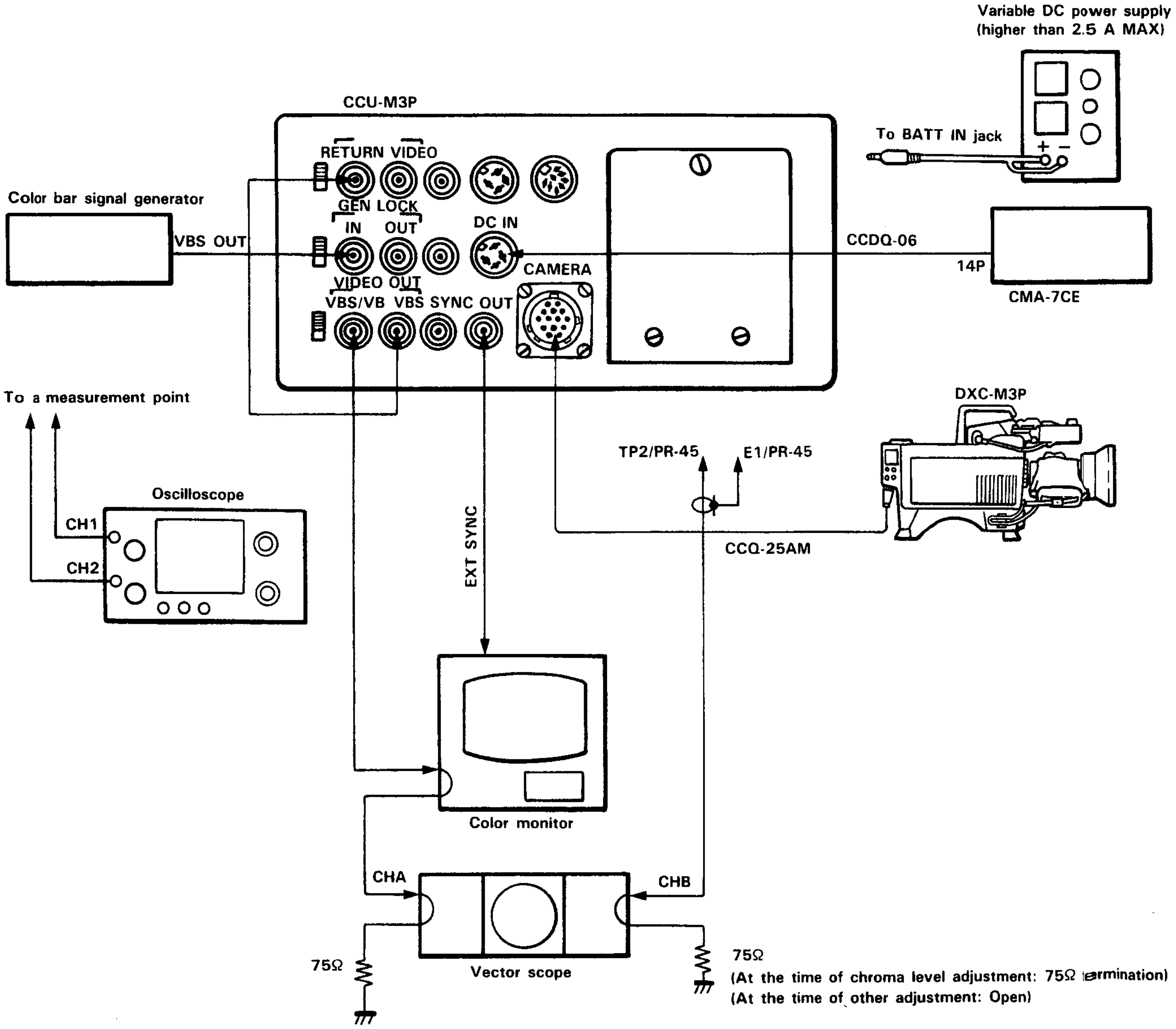
1. 2 phenomena oscilloscope (larger than 30 MHz)
2. Digital voltmeter or tester
3. Color bar signal generator or camera equivalent to DXC-M3P
4. Low frequency wave signal generator
5. Variable DC power supply (2A MAX)
6. Color camera DXC-M3P
7. AC adapter CMA-7CE
8. Vector scope
9. Color monitor equivalent to BVM-1301P
10. CCQ cable: CCQ-25AN (25 m)
11. CCDQ cable: CCDQ-0.6

3-2. INITIAL SETTING BEFORE ADJUSTMENT

Location of each switch
LOCK : OFF
SC PHASE 0°/180° : 0°
MODE CAM/BARS : BARS
GAIN 0dB/9dB/18dB : 0dB
W & B BAL : AUTO
IRIS AUTO/MANU : MANU
75Ω ON/OFF : ON
(Rear panel)

Location of each volume
M. PED
R PED, B PED } Mechanical center
R GAIN, B GAIN

3-3. CONNECTION DIAGRAM


Variable DC power supply
(higher than 2.5 A MAX)
To BATT IN jack
+ −
CCU-M3P
RETURN VIDEO
GEN LOCK
IN OUT
DC IN
VIDEO OUT
VBS/VB VBS SYNC OUT
CAMERA
Color bar signal generator
VBS OUT
CCDQ-06
14P
CMA-7CE
DXC-M3P
To a measurement point
Oscilloscope
CH1
CH2
TP2/PR-45
E1/PR-45
CCQ-25AM
EXT SYNC
Color monitor
CHA
CHB
Vector scope
75Ω
75Ω
(At the time of chroma level adjustment: 75Ω termination)
(At the time of other adjustment: Open)

Note: Color camera DXC-M3P must fully be adjusted.

3-4. DC POWER SUPPLY VOLTAGE ADJUSTMENT (PS-27 BOARD)

Input the DC power supply at AC adapter CMA-7 and turn the power switch on.

3-4-1. +9.5V Adjustment

Equipment : Digital voltmeter or tester
Test point : TP 7 (GND: E1)/PS-27 board
Adj point : ⊘ RV 5/PS-27 board
Spec : +9.5 ± 0.05 Vdc

3-4-2. +9V Adjustment

Equipment : Digital voltmeter or tester
Test point : TP 3 (GND: E1)/PS-27 board
Adj point : ⊘ RV 2/PS-27 board
Spec : +9.0 ± 0.05 Vdc

3-4-3. +5V Adjustment

Equipment : Digital voltmeter or tester
Test point : TP 4 (GND: E1)/PS-27 board
Adj point : ⊘ RV 3/PS-27 board
Spec : +5.0 ± 0.05 Vdc

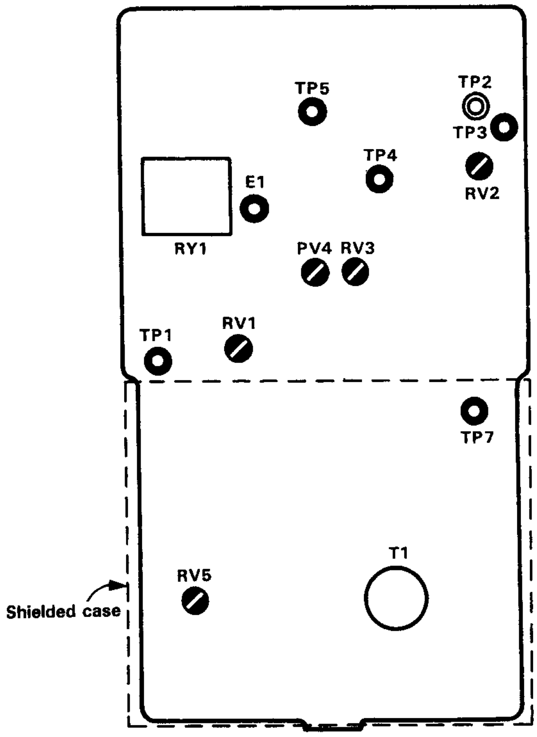
3-4-4. −5V Adjustment

Equipment : Digital voltmeter or tester
Test point : TP 5 (GND: E1)/PS-27 board
Adj point : ⊘ RV 4/PS-27 board
Spec : −5.0 ± 0.05 Vdc

3-4-5. Auto Shut-off Adjsutment

Condition : Input 12V to the BATT IN jack from the variable DC power supply. Measure the voltage at this time at the BATT IN jack. If there is no BATT plug, connect with a clip, disconnecting the lead line on the jack side.
Equipment : Digital voltmeter or tester
DC power supply (variable voltae type)
Adj point : ⊘ RV 1/PS-27 board
Adjustment: Turn on the power switch of the CCU and set the variable DC power supply 10.95 ±0.05V. Use RV1 to adjust the flashing start point of the POWER LAMP. Reduce the voltage input and confirm that the power supply automatically turns off at input 10.8 ± 0.1V. If it does not turn off, re-adjust RV1.

Note: If power cannot be supplied, turn RV1 fully counterclockwise and re-adjust.

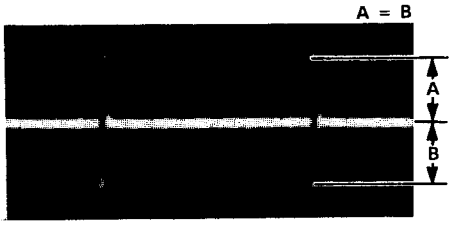


PS-27 board (component side)

3-5. CABLE COMPENSATION SYSTEM (PR-44 BOARD) ADJUSTMENT

3-5-1. Burst DC Offset Adjustment

Equipment : Oscilloscope
Test point : TP 1 (GND: E1)/PR-44 board
Adj point : ⊘ RV1/PR-44 board



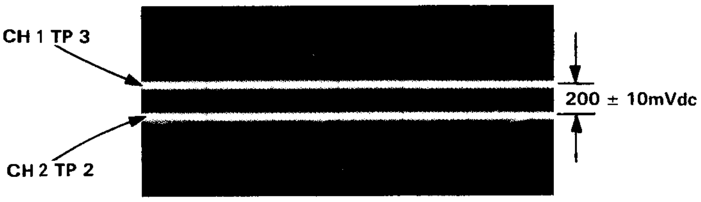
3-5-2. Cable Length Adjustment

Equipment : Oscilloscope
Preparation : Oscilloscope adjustment

- Connect both CH 1 and CH 2 to TP 2. Voltage must be 200± 10mV.

Adj point : ⊘ RV2/PR-44 board
Adjustment:

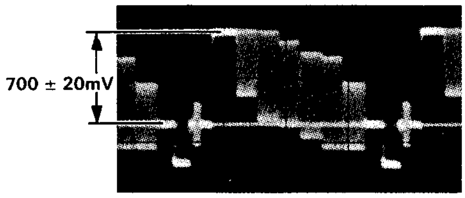
1. Cable length "25m" setting (⊘ RV2 temporary adjustment).
   Test point: TP 8 (GND: E1)/PR-44 board Use ⊘ RV2 and temporarily change the DC level of TP 8 from minus voltage (about -3V) to plus voltage (about 0.5V).
2. Cable length adjustment
   Test point:
   CH 1 TP 3 (GND: E1)/PR-44 board
   CH 2 TP 2 (GND: E1)/PR-44 board



3-5-3. VBS Delay Level Adjustment

Note: Connect VBS OUT to the 75 Ω pin (rear panel)

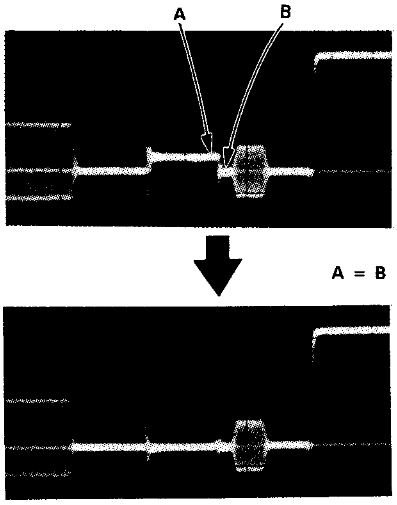
Equipment : Oscilloscope
Test point : TP 12 (GND: E1)/PR-44 board
Adj point : ⊘ RV5/PR-44 board
Adjustment: Use ⊘ RV5 to set the WHITE level within the standard.
Spec : 700±20mV

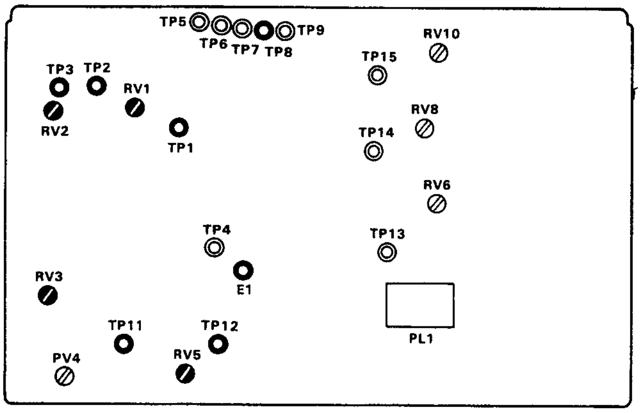


3-5-4. VB Signal Adjustment

Note: Connect VBS/VB OUT to the 75Ω pin (rear panel)

Equipment : Oscilloscope
CCU : VBS/VB switch (rear panel) "VB"
Test point : TP 11 (GND: E1)/PR-44 board
Adj point : ⊘ RV3/PR-44 board
Adjustment: Match B to level A.



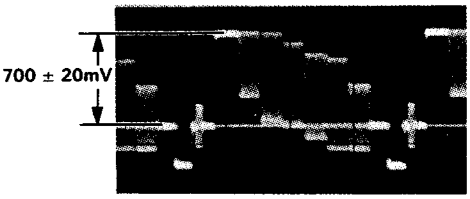


PR-44 board (component side)

3-5-5. VB/VBS Delay Level Adjustment

Note: Connect VBS/VB OUT to the 75Ω pin (rear panel)

Equipment : Oscilloscope
CCU : VBS/VB switch (rear panel) "VBS"
Test point : TP 11 (GND: E1)/PR-44 board
Adj point : ⊘ RV4/PR-44 board
Adjustment: Use ⊘ RV4 to set the WHITE level within the standard.
Spec : WHITE LEVEL: 700±20mV
See photo 3-5-3.

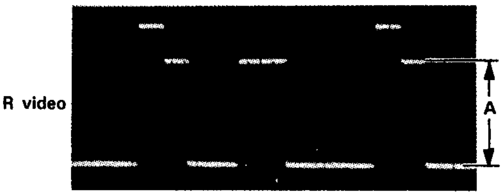


3-5-6. R/G/B Video-Gain Adjustment

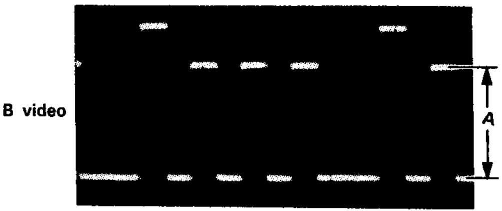
Equipment : Oscilloscope
Test point, Adj point:

	Test point	Adj point
R video	TP 13	⊘ RV 6
B video	TP 14	⊘ RV 8
G video	TP 15	⊘ RV 10

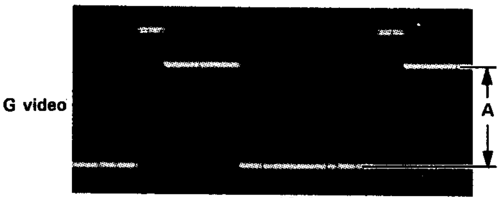
Spec: A = 536±20mV



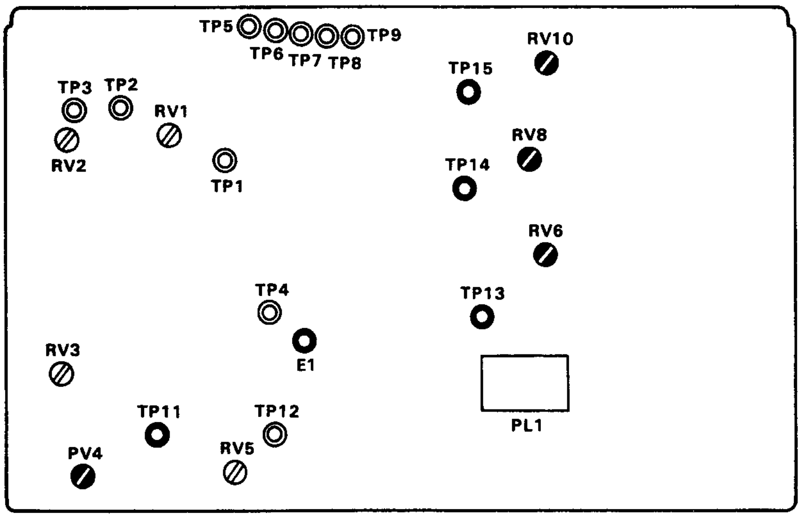
(R OUT: 75Ω terminal)



(B OUT: 75Ω terminal)



(G OUT: 75Ω terminal)


TP5
TP6
TP7
TP8
TP9
RV10
TP15
TP3
TP2
RV1
RV2
TP1
RV8
TP14
RV6
TP4
TP13
E1
RV3
TP11
TP12
PL1
PV4
RV5

PR-44 board (component side)

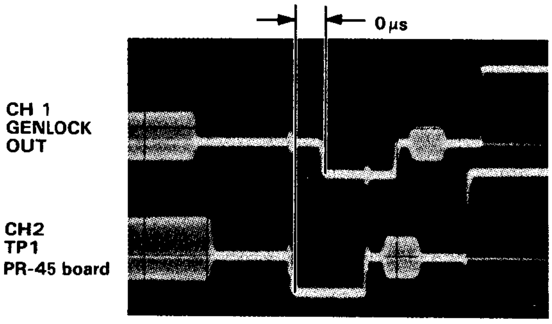
3-6. RETURN VIDEO SYSTEM (PR-45 BOARD) ADJUSTMENT

Note: Adjust when the color bar signal is being input to GEN LOCK IN or RETURN VIDEO IN as shown in the connection diagram.

Preparation:

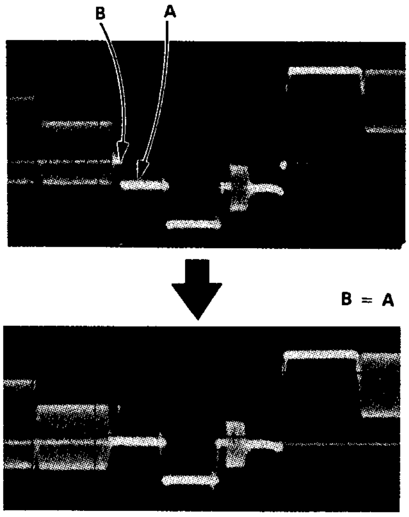
1. Set the SI (ADJ/OPE) switch to "ADJ".
2. Set the "H PHASE" volume (front panel) of the CCU using the oscilloscope.

After that, do not touch the H PHASE volume.



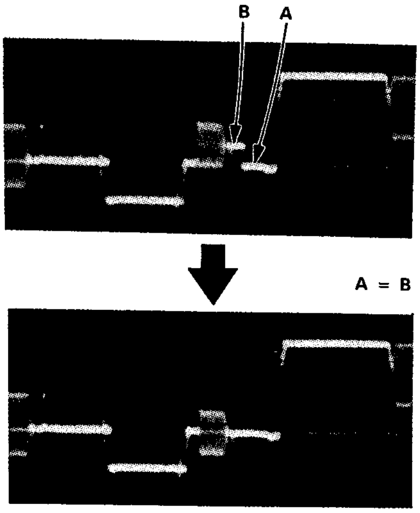
3-6-1. SYNC CLIP Adjustment

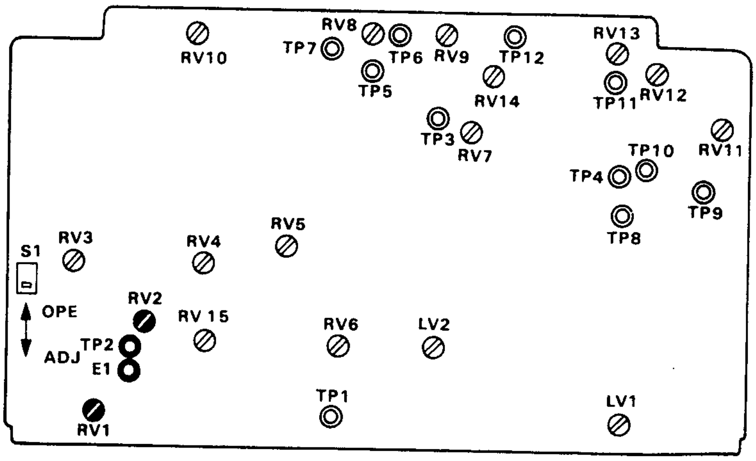
Equipment : Oscilloscope
Test point : TP 2 (GND: E1)/PR-45 board
Adj point : ⊘ RV1/PR-45 board
Adjustment: Use ⊘ RV1 to match A to level B.



3-6-2. Burst Offset Adjustment

Equipment : Oscilloscope
Test point : TP 2 (GND: E1)/PR-45 board
Adj point : ⊘ RV2/PR-45 board
Adjustment: Use ⊘ RV2 to match B to level A.

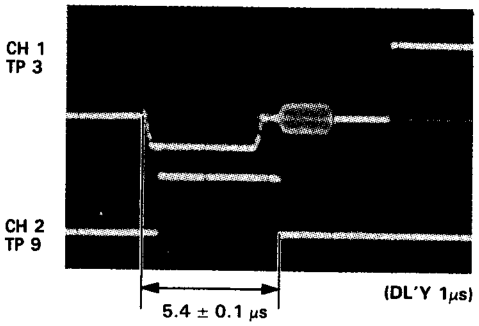



RV10
RV8
TP7
TP6
RV9
TP12
RV13
TP5
RV14
TP11
RV12
TP3
RV7
TP10
RV11
TP4
TP9
TP8
RV5
S1
RV3
RV4
OPE
RV2
RV 15
RV6
LV2
ADJ
TP2
E1
TP1
LV1
RV1

PR-45 board (component side)

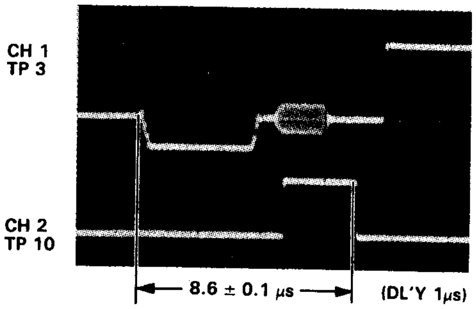
3-6-3. Burst Gate Pulse Phase Adjustment

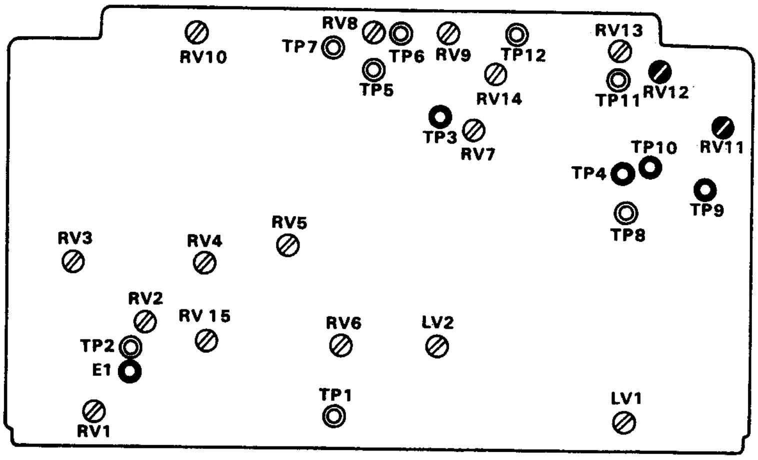
Equipment : Dual trace oscilloscope
Test point : CH1 : TP 3 (GND: E1)/PR-45 board
CH2 : TP 9 (GND: E1)/PR-45 board
Trigger : HD (TP 4/PR-45 board)
Adj point : ⊘ RV11/PR-45 board
Spec : 5.4±0.1 μs



3-6-4. Burst Gate Pulse Width Adjustment

Equipment : Dual trace oscilloscope
Test point : CH1 : TP 3 (GND: E1)/PR-45 board
CH2 : TP 10 (GND: E1)/PR-45 board
Trigger : HD (TP 4/PR-45 board)
Adj point : ⊘ RV12/PR-45 board
Spec : 8.6±0.1 μs

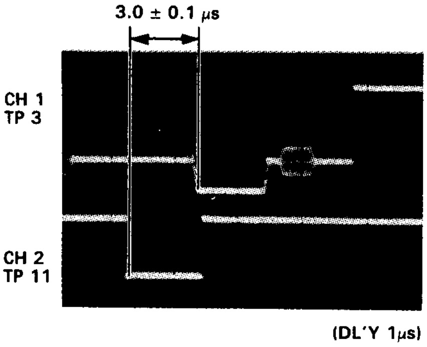



RV10
RV8
TP7
TP6
TP5
RV9
TP12
RV14
RV13
TP11
RV12
TP3
RV7
TP10
RV11
TP4
TP9
TP8
RV3
RV4
RV5
RV2
RV 15
RV6
LV2
TP2
E1
TP1
LV1
RV1

PR-45 board (component side)

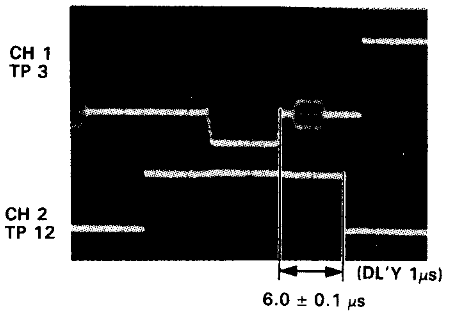
3-6-5. SYNC Cleaning Pulse Phase Adjustment

Equipment : Dual trace oscilloscope
Test point : CH1 : TP 3 (GND: E1)/PR-45 board
CH2 : TP 11 (GND: E1)/PR-45 board
Trigger : HD (TP 4/PR-45 board)
Adj point : ⊘ RV13/PR-45 board
Spec : 3.0±0.1 μs



3-6-6. SYNC Cleaning Pulse Width Adjustment

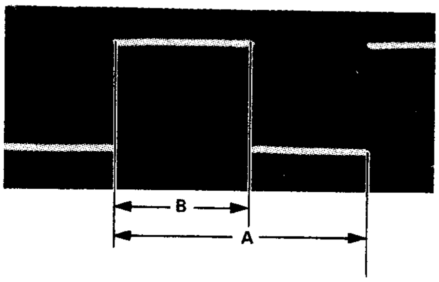
Equipment : Dual trace oscilloscope
Test point : CH1 : TP 3 (GND: E1)/PR-45 board
CH2 : TP 12 (GND: E1)/PR-45 board
Trigger : HD (TP 4/PR-45 board)
Adj point : ⊘ RV14/PR-45 board
Spec : 6.0±0.1 μs

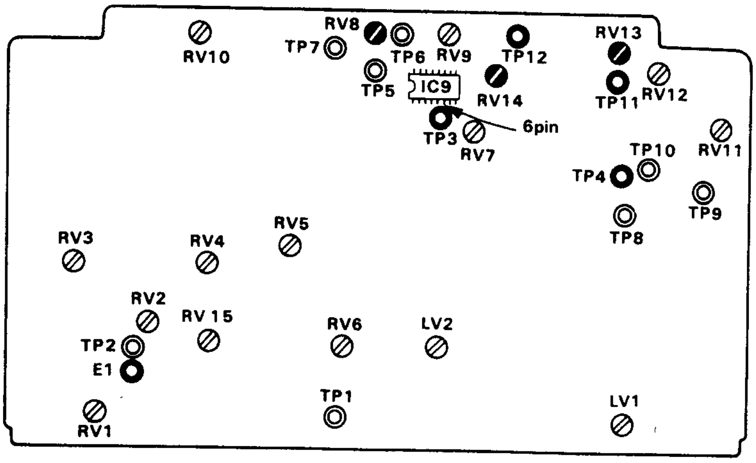


3-6-7. 1/2 H Killer Adjustment

Equipment : Oscilloscope
Test point : IC 9-6 pin (GND: E1) PR-45 board
Adj point : ⊘ RV8/PR-45 board
Adjustment: B/A = 55%

- Adjust the oscilloscope H
- VARIABLE and match the output wave A to 10 scale divisions.

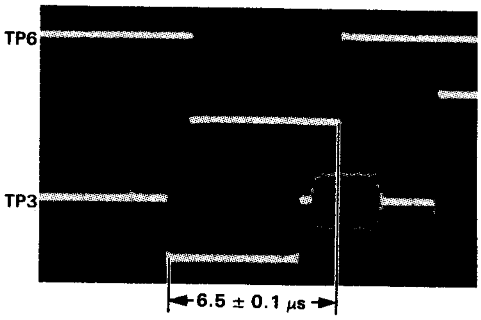



RV10
TP7
RV8
TP6
RV9
TP12
RV13
TP5
IC9
RV14
TP11
RV12
6pin
TP3
RV7
TP10
RV11
TP4
TP9
TP8
RV3
RV4
RV5
RV2
RV 15
RV6
LV2
TP2
E1
TP1
LV1
RV1

PR-45 board (component side)

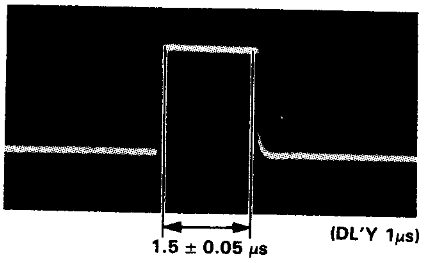
3-6-8. Clump Pulse Phase Adjustment

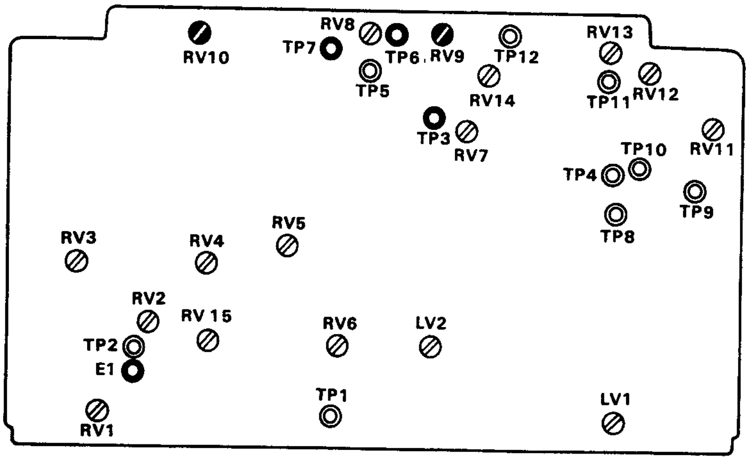
Equipment : Oscilloscope
Test point : CH1 : TP 6 (GND: E1)/PR-45 board
CH2 : TP 3 (GND: E1)/PR-45 board
Adj point : ⊘ RV9/PR-45 board
Spec : 6.5±0.1 μs



3-6-9. Clump Pulse Width Adjustment

Equipment : Oscilloscope
Test point : TP 7 (GND: E1)/PR-45 board
Adj point : ⊘ RV10/PR-45 board
Spec : 1.5±0.05 μs




RV10
RV8
TP7
TP6
RV9
TP12
TP5
RV14
RV13
TP11
RV12
TP3
RV7
TP10
RV11
TP4
TP9
TP8
RV3
RV4
RV5
RV2
RV15
RV6
LV2
TP2
E1
TP1
LV1
RV1

PR-45 board (component side)

3-6-10. BIAS-1 Adjustment

Note: 1. Adjust when the color bar signal is being input to GEN LOCK IN and RETURN VIDEO IN.
2. For BIAS-1 adjustment, connect pin ⑤ of the IC 4/PR-45 board to GND using mylar 0.01 μF to lose the 90° phase equipment output (Figure 3-1).

Equipment : Vector scope
Test point : TP 2 (GND: E1)/PR-45 board (Use alligator clips at the ends of the coaxial cable.)
Adj point : ⊘ RV5/PR-45 board
Adjustment: When ⊘ RV3 (GAMMA SET)/PR-45 board, is turned the chroma level becomes smaller at both ends of ⊘ RV3.
Adjust ⊘ RV5 so that the smallest level is obtained at both ends of RV3.

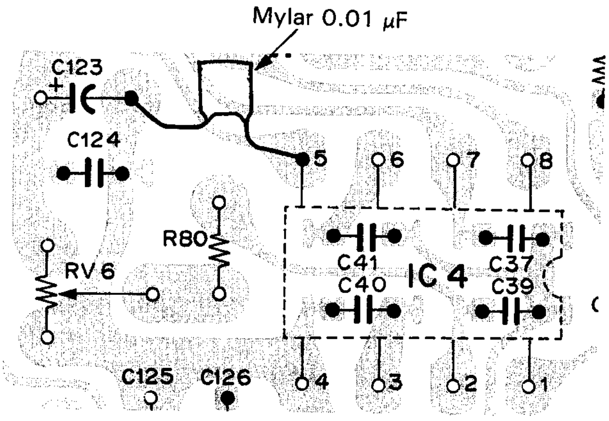
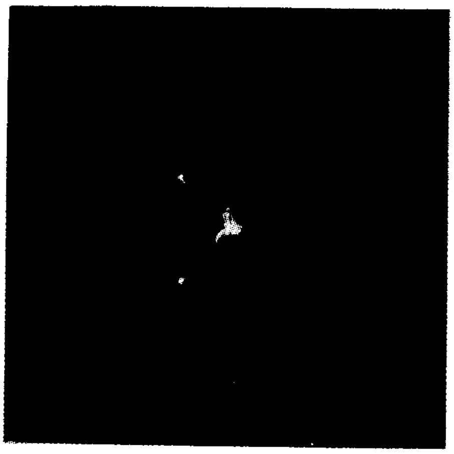
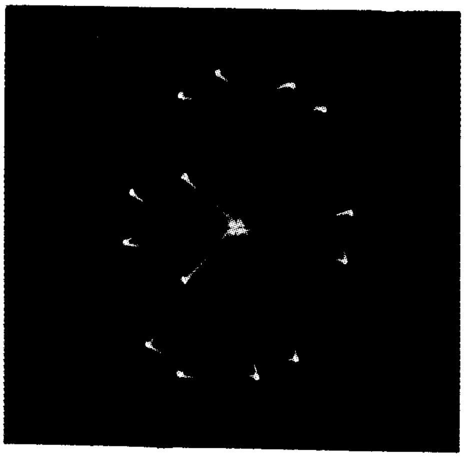

Mylar 0.01 μF
C123
C124
R80
RV6
5
6
7
8
C41
C40
IC 4
C37
C39
C125
C126
4
3
2
1

Figure 3-1

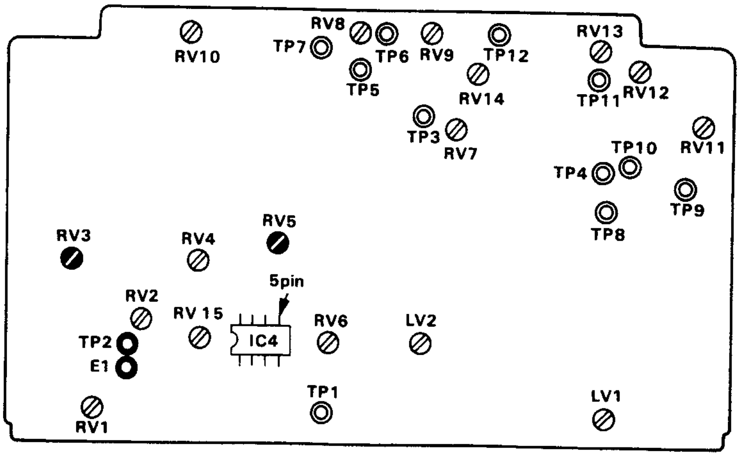
⊘ RV3 → mid-Position



⊘ RV3 → ↻ & ↺



Note: Remove mylar 0.01 μF after finishing the adjustment.
⊘ RV3 → Mechanical center


RV10
TP7
RV8
TP6
RV9
TP12
TP5
RV14
RV13
TP11
RV12
TP3
RV7
TP10
RV11
TP4
TP9
TP8
RV3
RV4
RV5
5pin
RV2
RV 15
IC4
RV6
LV2
TP2
E1
TP1
LV1
RV1

PR-45 board (component side)

3-6-11. BIAS-2 Adjustment

Note: For BIAS-2 adjustment, connect pin ⑤ of the IC 3/PR-45 board to GND using mylar 0.01 μF to lose the 90° phase equipment output (Figure 3-2)

Equipment : Vector scope
Test point : TP 2 (GND: E1)/PR-45 board (Use alligator clips at the ends of the coaxial cable.)
Adj point : ⊘ RV6/PR-45 board
Adjustment: 1. Set ⊘ RV3 (GAMMA SET)/PR-45 board to the mechanical center and adjust ⊘ RV6 so that the smallest chroma level is obtained.
2. Adjust ⊘ RV6 so that the chroma level is equal at both ends of ⊘ RV3.

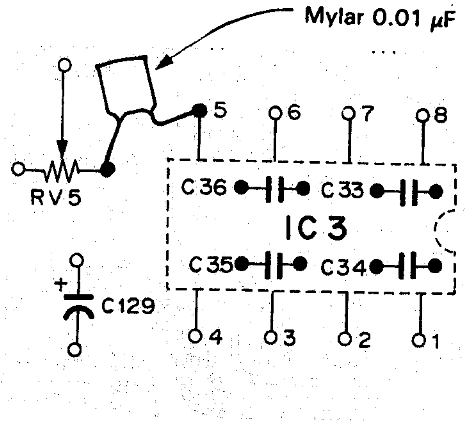
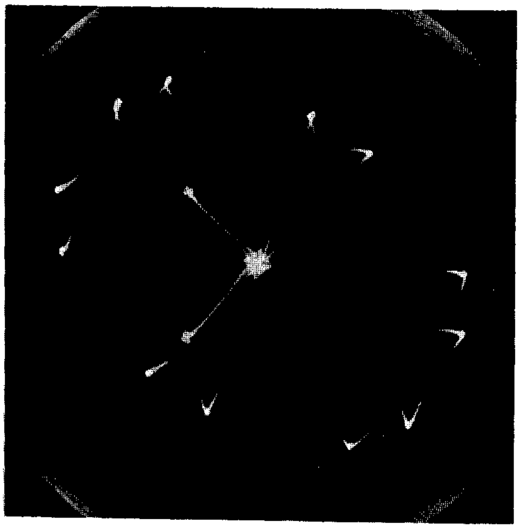
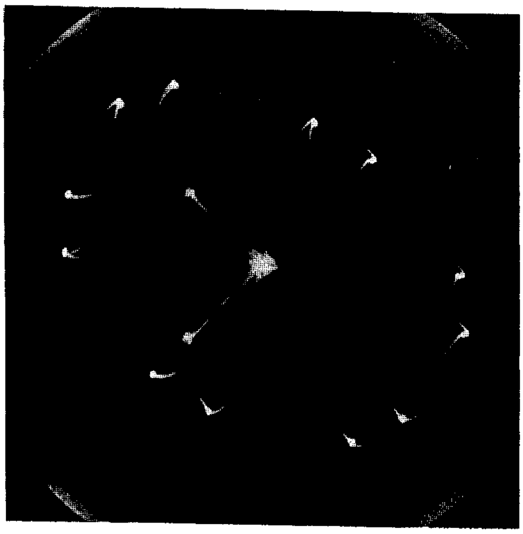

Mylar 0.01 μF
RV5
5
6
7
8
C36
C33
IC3
C35
C34
C129
4
3
2
1

Figure 3-2

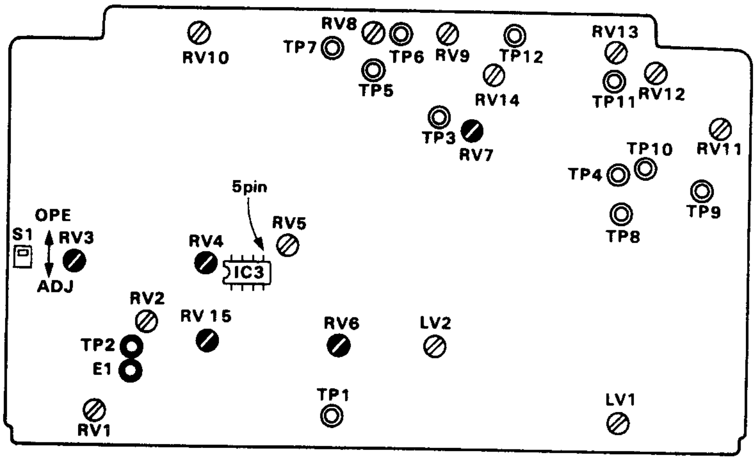
Left end



Right end



Note: Remove mylar 0.01 μF after finishing the adjustment.
⊘ RV3 → Mechanical center

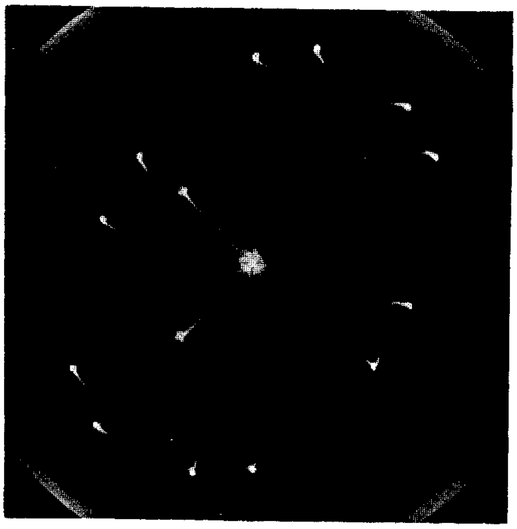

RV10
RV8
TP7
TP6
RV9
TP12
TP5
RV14
RV13
TP11
RV12
TP3
RV7
TP10
RV11
TP4
TP9
TP8
5pin
OPE
S1
RV3
ADJ
RV4
RV5
IC3
RV2
RV 15
RV6
LV2
TP2
E1
TP1
LV1
RV1

PR-45 board (component side)

3-6-12. Gamma Adjustment

Equipment : Vector scope
Test point : TP 2 (GND : E1)/PR-45 board (Use alligator clips at the ends of the coaxial cable.)
Adj point : ⊘ RV4/PR-45 board
Adjustment: Adjust ⊘ RV4 so that the chroma level is equal at both ends when ⊘ RV3 (GAMMA SET) is set to the mechanical center.

⊘ RV3 → mechanical center



Note: After adjustment is finished;
⊘ RV3 → Mechanical center
S1 (ADJ/OPE) switch → OPE position

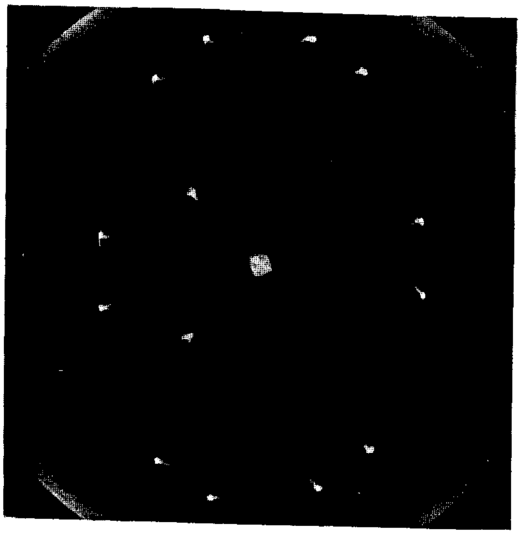
3-6-13. Chroma Level Adjustment

Connection : Adjust with GEN LOCK OUT and RETURN VIDEO IN connected.
Equipment : Vector scope
Preparation :

1. CCU switch and volume setting
   - SC PHARE volume (front panel) → Fully clockwise ↻
   - SC PHARE 0°/180° switch (front panel) → 0° position
   - SI (ADJ/OPE) switch/PR-45 board → OPE position
2. Remove connector CN 2/PR-45 board and set the output terminal to the 75Ω pin.
   RETURN VIDEO"IN/OUT"-75Ω "ON/OFF" SW (Rear Panel) → OFF.

Test point : TP 2 (GND: E1)/PR-45 board (Use alligator clips at the ends of the coaxial cable.)
Adj point : ⊘ RV7 (burst level)
⊘ RV15 (chroma level)
Spec : Burst level 75±5%
Chroma spot within "⊞".
Adjustment:

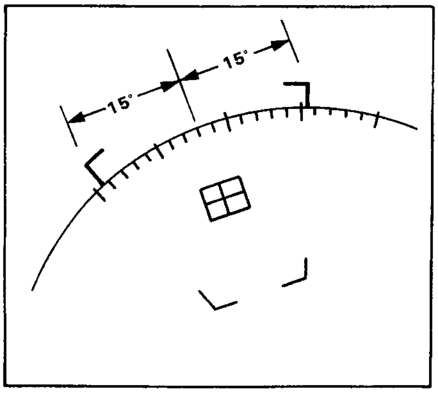
1. Adjust the "PHASE" volume of the vector scope so that the burst spot of the vector scope is on the 75% axis.
2. Adjust ⊘ RV15 so that the chroma spot is in the are "⊞" where each color is specified.
3. Adjust ⊘ RV7 so that the burst spot is on the 75% axis.



Note: After finishing adjustment:
- Plug in connector CN 2 and remove the 75Ω pin connected to the plug of the vector scope.
- RETURN VIDEO"IN/OUT"-75Ω "ON/OFF" SW (Rear Panel) → ON.
- Return the connection from GEN LOCK OUT to VBS VIDEO OUT.

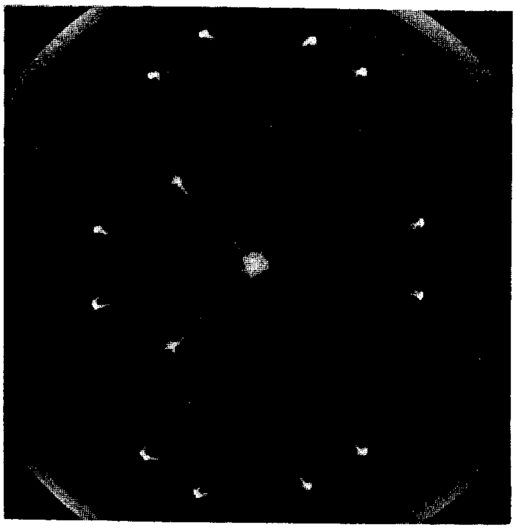
3-6-14. SC Phase Adjustment

Equipment : Vector scope
Test point : TP 2 (GND: E1)/PR-45 board
(Use alligator clips at the ends of the coaxial cable)
Adj point : ⊘ LV 1/PR-45 board
⊘ LV 2/PR-45 board
Spec : ±15° for the center of the frame

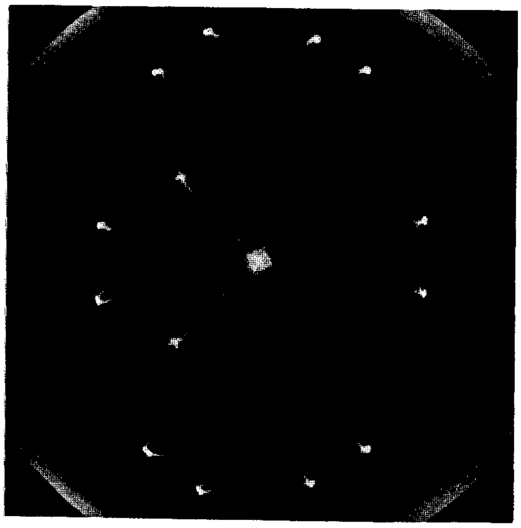


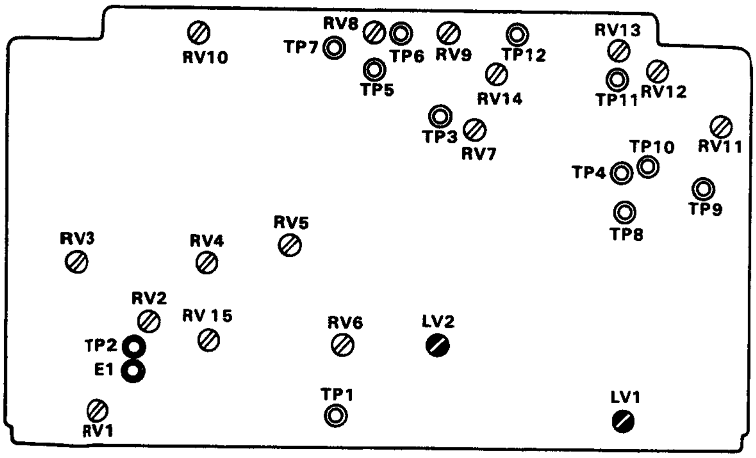
Adjustment:

1. Turn ⊘ LV1 (0/π PHASE) fully clockwise ↻ and then turn it counterclockwise ↺ two turns.
2. Adjust ⊘ LV2 so that only the vector phase is in the area "Spec (±15°)" where each color is specified.



3. With the SC PHASE SW 0°/180° of the CCU and SC PHASE volume turned 360°, adjust ⊘ LV1 so that the phase is in the area "Spec (±15°)" where each color is specified.



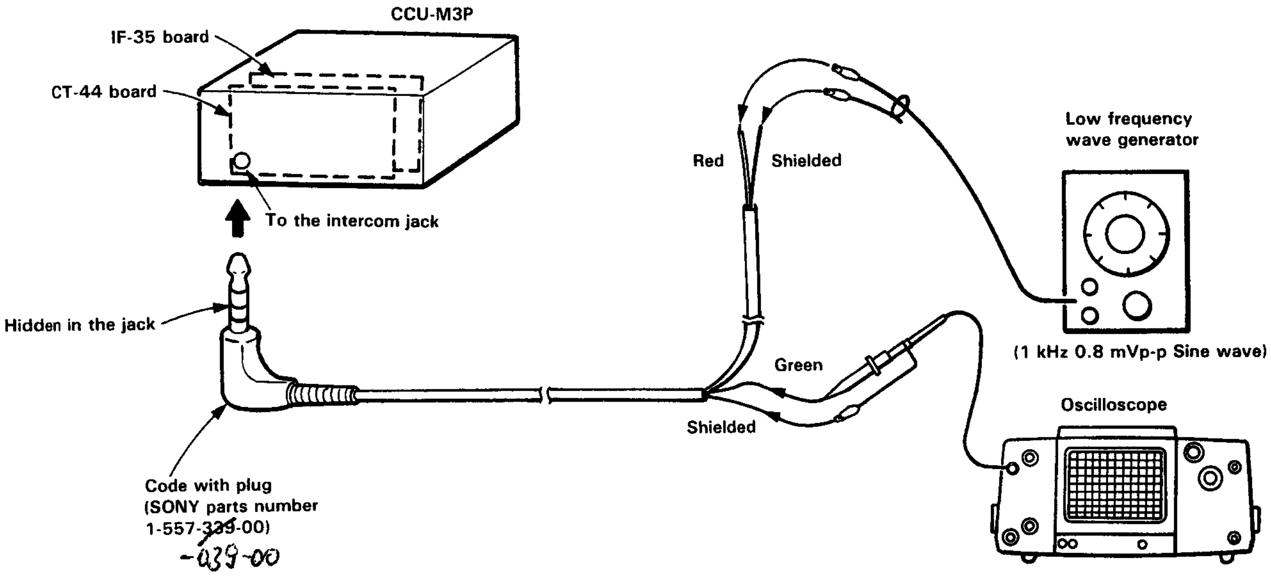

RV10
RV8
TP7
TP6
RV9
TP12
TP5
RV13
RV14
TP11
RV12
TP3
RV7
TP10
RV11
TP4
TP9
TP8
RV3
RV4
RV5
RV2
RV15
RV6
LV2
TP2
E1
TP1
LV1
RV1

PR-45 board (component side)

3-7. SIDE TONE Level (IF-35 Board) Adjustment

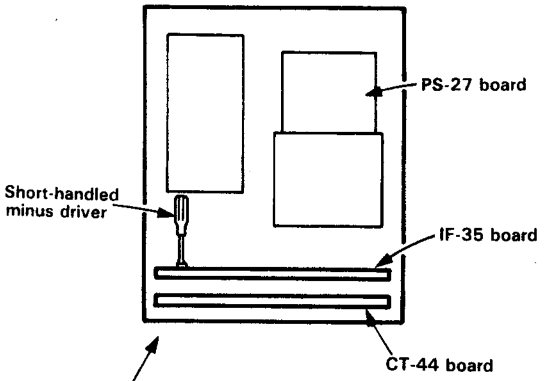
Note: Adjust at intercom output open (camera head removed.)

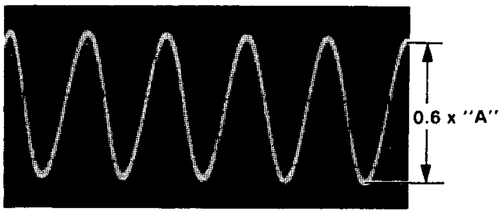
Connection diagram/Required equipment:

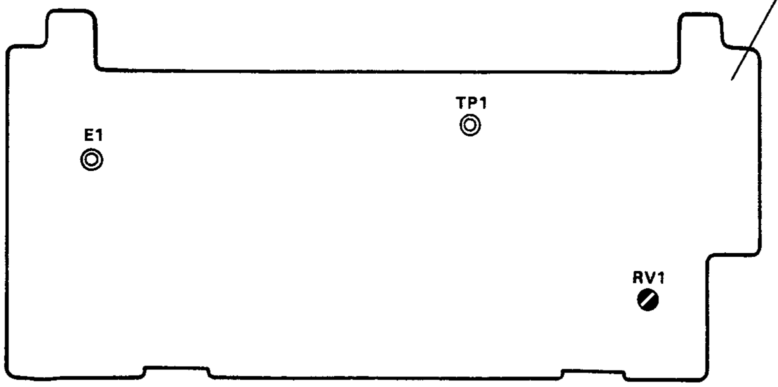

CCU-M3P
IF-35 board
CT-44 board
To the intercom jack
Hidden in the jack
Code with plug
(SONY parts number
1-557-~~339~~-00)
-039-00
Red
Shielded
Green
Shielded
Low frequency
wave generator
(1 kHz 0.8 mVp-p Sine wave)
Oscilloscope

Test point : INTERCOM PHONE jack (front panel)
CCU : INTERCOM Volume (front panel) → Fully clockwise ↻
Adj point : ⊘ RV1/IF-35 board
Spec :

1. Turn ⊘ RV1 fully counterclockwise ↺ and measure the output level "A".
2. Adjust ⊘ RV1 so that 60% of output level "A" is indicated.


PS-27 board
Short-handled
minus driver
IF-35 board
CT-44 board

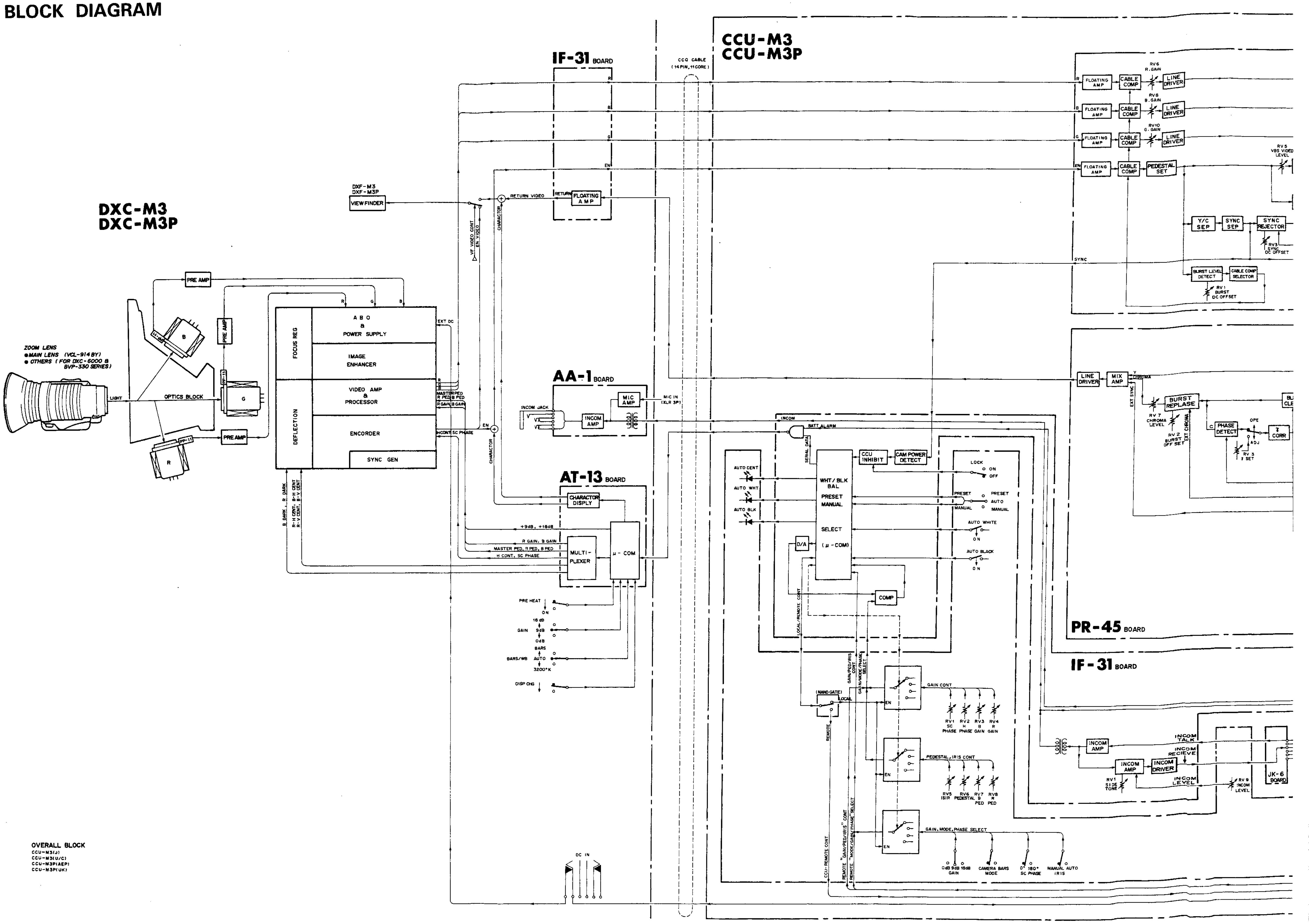




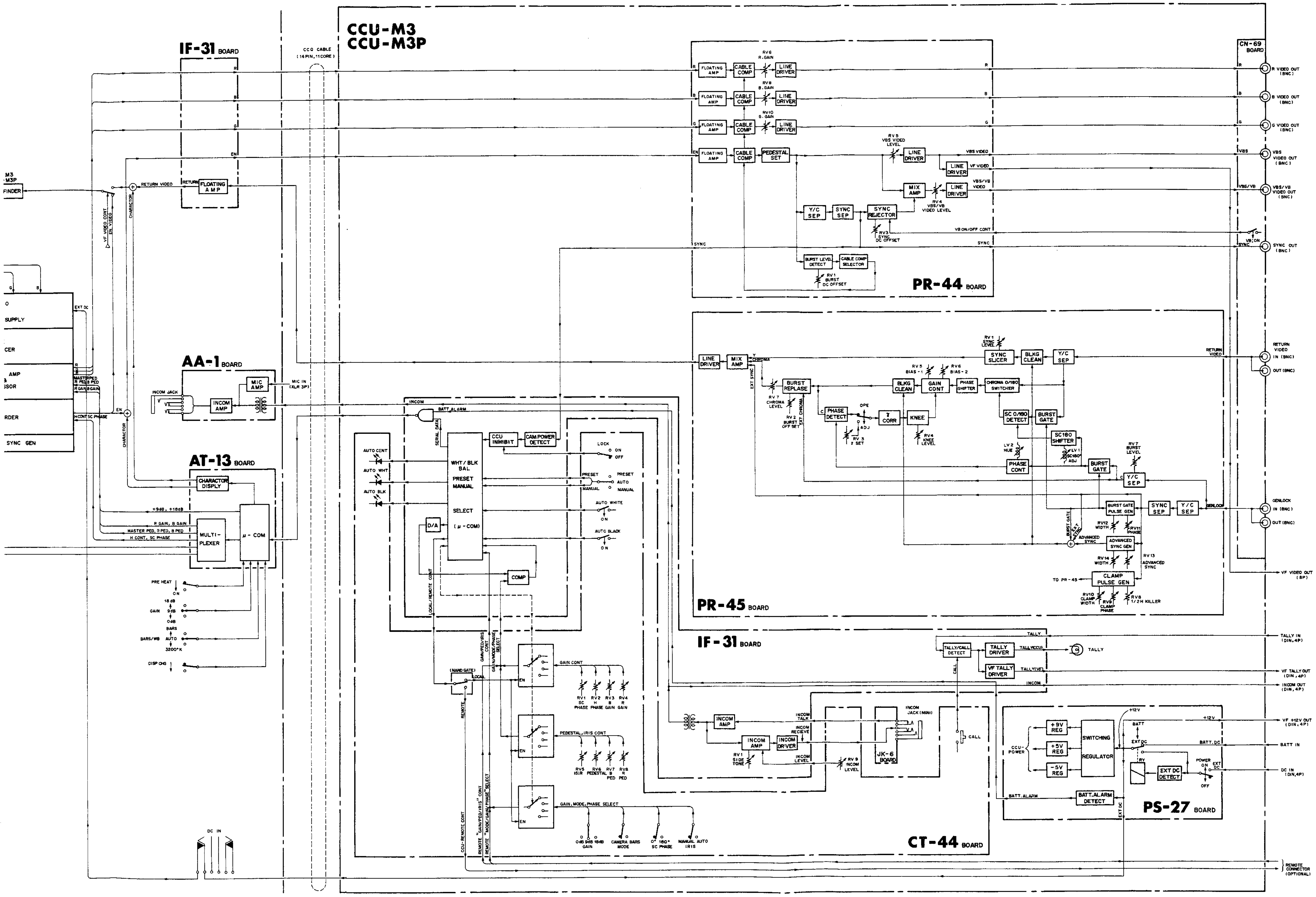
IF-35 board (component side)

SECTION 4
BLOCK DIAGRAM

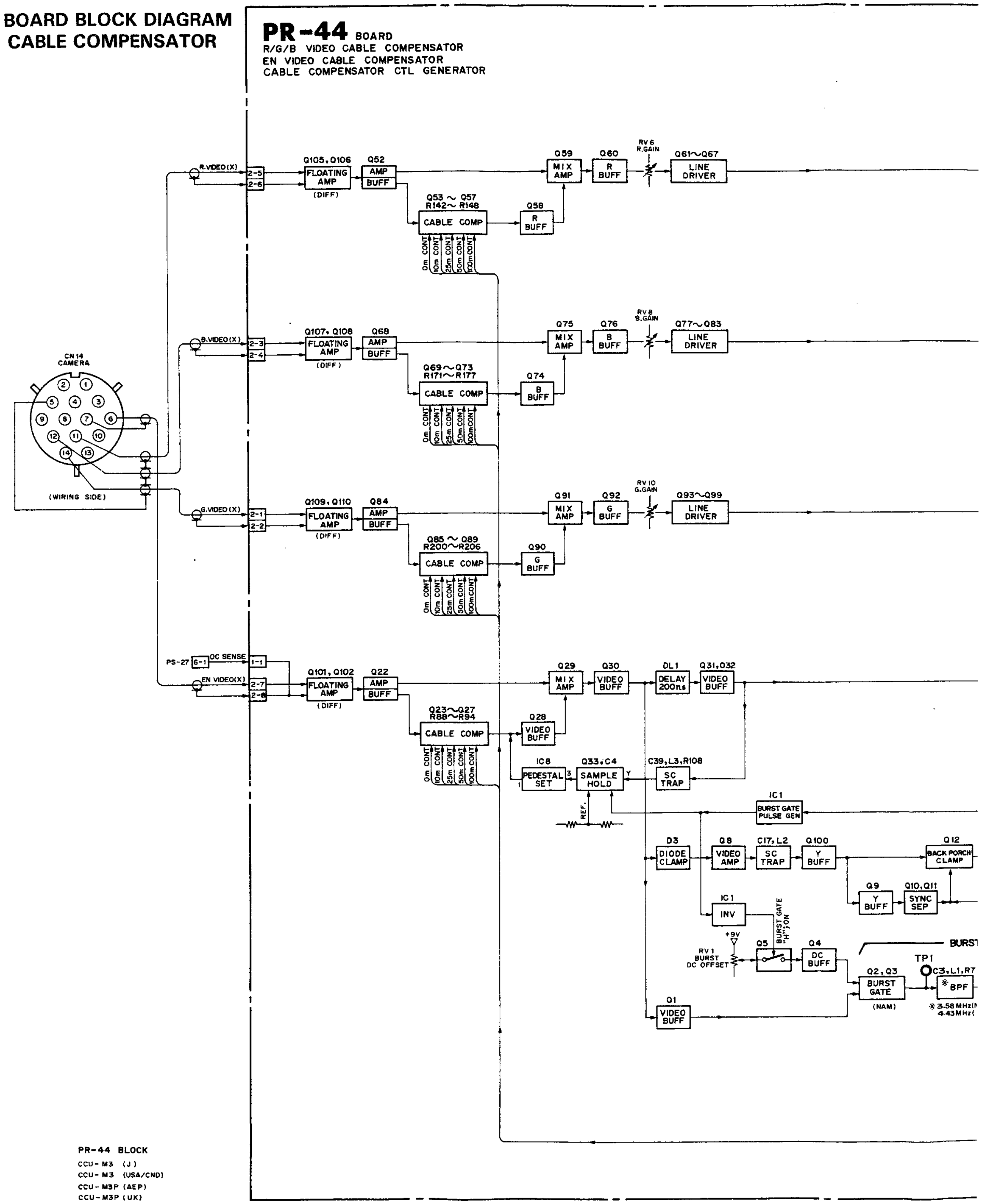
4-1. OVERALL BLOCK DIAGRAM


DXC-M3
DXC-M3P
ZOOM LENS
●MAIN LENS (VCL-914BY)
● OTHERS (FOR DXC-6000 & BVP-330 SERIES)
LIGHT
OPTICS BLOCK
PRE AMP
B
G
R
FOCUS REG
DEFLECTION
A B O & POWER SUPPLY
IMAGE ENHANCER
VIDEO AMP & PROCESSOR
ENCORDER
SYNC GEN
EXT DC
MASTER PED
R PED, B PED
R GAIN, B GAIN
H CONT, SC PHASE
DXF-M3
DXF-M3P
VIEW FINDER
VF VIDEO CONT
EN VIDEO
RETURN VIDEO
CHARACTOR
IF-31 BOARD
FLOATING AMP
CCQ CABLE (14 PIN, 11 CORE)
AA-1 BOARD
INCOM JACK
INCOM AMP
MIC AMP
MIC IN (XLR 3P)
AT-13 BOARD
CHARACTOR DISPLY
+9dB, +18dB
R GAIN, B GAIN
MASTER PED, R PED, B PED
H CONT, SC PHASE
MULTI-PLEXER
μ-COM
PRE HEAT
ON
GAIN
18 dB
9 dB
0 dB
BARS/WB
BARS
AUTO
3200°K
DISP CHG
DC IN
CCU-M3
CCU-M3P
FLOATING AMP
CABLE COMP
LINE DRIVER
RV6 R.GAIN
RV8 B.GAIN
RV10 G.GAIN
PEDESTAL SET
RV5 VBS VIDEO LEVEL
Y/C SEP
SYNC SEP
SYNC REJECTOR
RV3 SYNC DC OFFSET
SYNC
BURST LEVEL DETECT
CABLE COMP SELECTOR
RV1 BURST DC OFFSET
LINE DRIVER
MIX AMP
CHROMA
EXT SYNC
BURST REPLASE
RV7 CHROMA LEVEL
RV2 BURST OFF SET
EXT CHROMA
PHASE DETECT
OPE
ADJ
RV3 τ SET
CORR
PR-45 BOARD
IF-31 BOARD
INCOM
BATT ALARM
SERIAL DATA
CCU INHIBIT
CAM POWER DETECT
AUTO CENT
AUTO WHT
AUTO BLK
WHT/BLK BAL
PRESET
MANUAL
SELECT
(μ-COM)
D/A
COMP
LOCK
ON
OFF
AUTO
AUTO WHITE
AUTO BLACK
LOCAL/REMOTE CONT
(NAND GATE)
LOCAL
REMOTE
EN
GAIN CONT
RV1 SC PHASE
RV2 H PHASE
RV3 B GAIN
RV4 R GAIN
PEDESTAL, IRIS CONT
RV5 IRIS
RV6 PEDESTAL
RV7 B PED
RV8 R PED
GAIN, MODE, PHASE SELECT
0dB 9dB 18dB GAIN
CAMERA BARS MODE
0° 180° SC PHASE
MANUAL AUTO IRIS
CCU-REMOTE CONT
INCOM AMP
INCOM TALK
INCOM RECIEVE
INCOM DRIVER
INCOM LEVEL
RV1 SIDE TONE
RV9 INCOM LEVEL
JK-6 BOARD

OVERALL BLOCK
CCU-M3(J)
CCU-M3(U/C)
CCU-M3P(AEP)
CCU-M3P(UK)

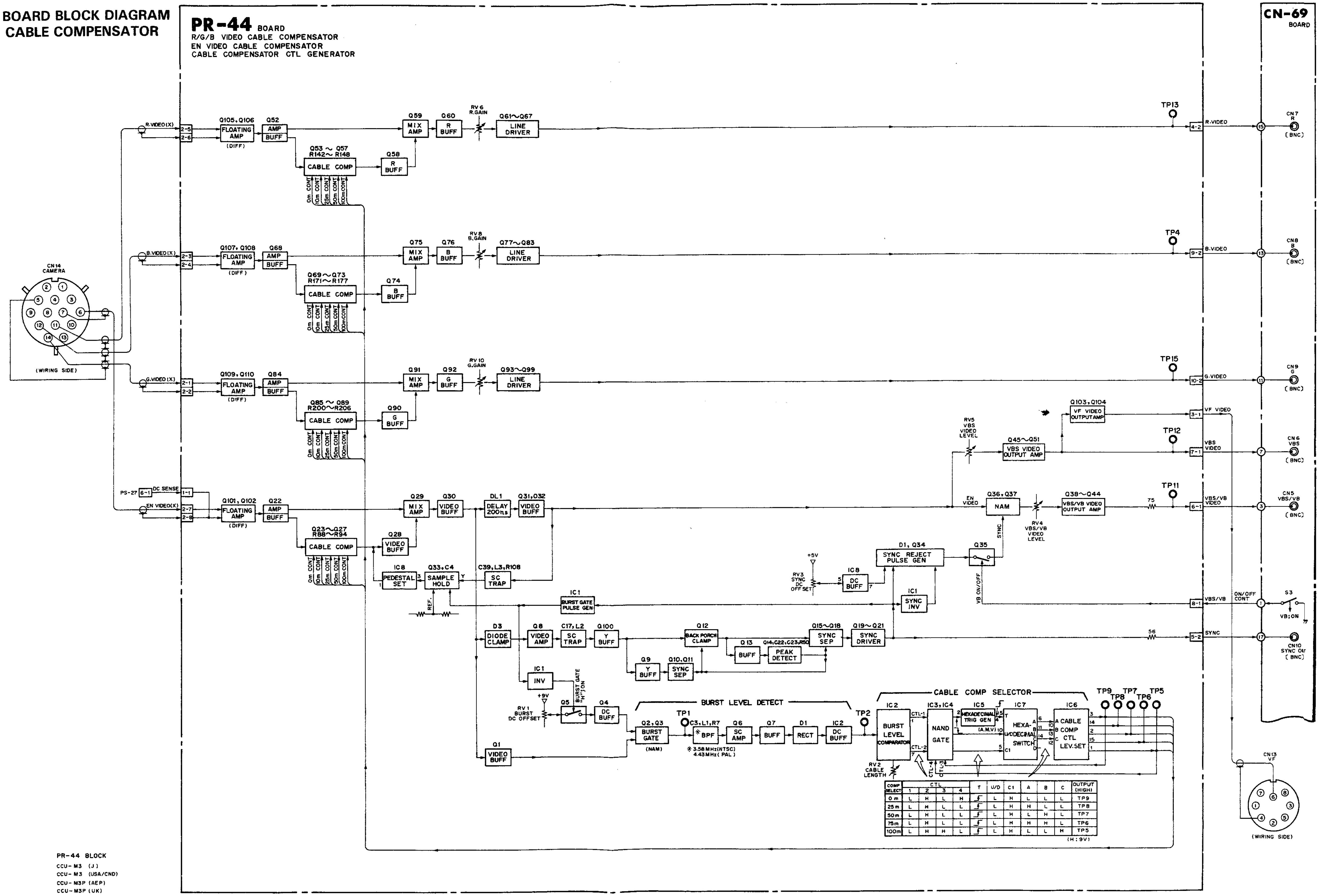

CCU-M3
CCU-M3P
IF-31 BOARD
CCQ CABLE (14 PIN, 11 CORE)
R
B
G
EN
RETURN
FLOATING AMP
RETURN VIDEO
M3
M3P
FINDER
VF VIDEO CONT
EN VIDEO
CHARACTOR
O
SUPPLY
CER
AMP
SSOR
RDER
SYNC GEN
EXT DC
MASTER PED
R PED B PED
R GAIN B GAIN
H CONT SC PHASE
AA-1 BOARD
MIC AMP
MIC IN (XLR 3P)
INCOM JACK
INCOM AMP
AT-13 BOARD
CHARACTOR DISPLY
+9dB, +18dB
R GAIN, B GAIN
MASTER PED, R PED, B PED
H CONT, SC PHASE
MULTI-PLEXER
μ-COM
PRE HEAT
ON
18 dB
GAIN
9dB
0dB
BARS
BARS/WB
AUTO
3200°K
DISP CHG
DC IN
FLOATING AMP
CABLE COMP
RV6 R.GAIN
RV8 B.GAIN
RV10 G.GAIN
LINE DRIVER
PEDESTAL SET
RV5 VBS VIDEO LEVEL
VBS VIDEO
VF VIDEO
VBS/VB VIDEO
MIX AMP
RV4 VBS/VB VIDEO LEVEL
Y/C SEP
SYNC SEP
SYNC REJECTOR
RV3 SYNC DC OFFSET
VB ON/OFF CONT
SYNC
BURST LEVEL DETECT
CABLE COMP SELECTOR
RV1 BURST DC OFFSET
PR-44 BOARD
CN-69 BOARD
R VIDEO OUT (BNC)
B VIDEO OUT (BNC)
G VIDEO OUT (BNC)
VBS
VBS VIDEO OUT (BNC)
VBS/VB
VBS/VB VIDEO OUT (BNC)
VB ON
SYNC OUT (BNC)
RETURN VIDEO IN (BNC)
OUT (BNC)
GENLOCK IN (BNC)
OUT (BNC)
VF VIDEO OUT (8P)
RV1 SYNC LEVEL
SYNC SLICER
BLKG CLEAN
Y/C SEP
RETURN VIDEO
Y
CHROMA
EXT SYNC
EXT CHROMA
RV5 BIAS-1
RV6 BIAS-2
BURST REPLASE
RV7 CHROMA LEVEL
RV2 BURST OFF SET
GAIN CONT
PHASE SHIFTER
CHROMA 0/180 SWITCHER
C
PHASE DETECT
OPE
ADJ
RV3 γ SET
γ CORR
KNEE
RV4 KNEE LEVEL
SC 0/180 DETECT
BURST GATE
SC180 SHIFTER
LV2 HUE
LV1 SC180° ADJ
PHASE CONT
RV7 BURST LEVEL
BURST GATE PULSE GEN
SYNC SEP
GENLOCK
RV12 WIDTH
RV11 PHASE
ADVANCED SYNC
ADVANCED SYNC GEN
RV14 WIDTH
RV13 ADVANCED SYNC
CLAMP PULSE GEN
TO PR-45
RV10 CLAMP WIDTH
RV9 CLAMP PHASE
RV8 1/2H KILLER
PR-45 BOARD
INCOM
BATT ALARM
SERIAL DATA
CCU INHIBIT
CAM POWER DETECT
LOCK
ON
OFF
AUTO CENT
AUTO WHT
AUTO BLK
WHT/BLK BAL
PRESET MANUAL
SELECT
(μ-COM)
D/A
PRESET
AUTO
MANUAL
AUTO WHITE
AUTO BLACK
COMP
LOCAL/REMOTE CONT
GAIN/PED/IRIS CONT
GAIN/MODE/PHASE SELECT
(NAND GATE)
LOCAL
REMOTE
EN
GAIN CONT
RV1 SC PHASE
RV2 H PHASE
RV3 B GAIN
RV4 R GAIN
PEDESTAL, IRIS CONT
RV5 IRIS
RV6 PEDESTAL
RV7 B PED
RV8 R PED
GAIN, MODE, PHASE SELECT
0dB 9dB 18dB GAIN
CAMERA BARS MODE
0° 180° SC PHASE
MANUAL AUTO IRIS
CCU-REMOTE CONT
REMOTE "GAIN/PED/IRIS" CONT
REMOTE "MODE/GAIN/PHASE" SELECT
IF-31 BOARD
TALLY
TALLY/CALL DETECT
TALLY DRIVER
TALLY(CCU)
VF TALLY DRIVER
TALLY(VF)
CALL
TALLY IN (DIN, 4P)
VF TALLY OUT (DIN, 4P)
INCOM OUT (DIN, 4P)
INCOM AMP
INCOM TALK
INCOM RECIEVE
INCOM DRIVER
INCOM LEVEL
RV1 SIDE TONE
RV9 INCOM LEVEL
INCOM JACK (MINI)
JK-6 BOARD
CT-44 BOARD
+12V
+9V REG
+5V REG
-5V REG
CCU-POWER
SWITCHING REGULATOR
BATT
EXT DC
BATT. DC
RY
EXT DC DETECT
POWER ON
OFF
BATT. ALARM
BATT. ALARM DETECT
PS-27 BOARD
VF +12V OUT (DIN, 4P)
BATT IN
DC IN (DIN, 4P)
REMOTE CONNECTOR (OPTIONAL)

4-2. PR-44 BOARD BLOCK DIAGRAM VIDEO CABLE COMPENSATOR


PR-44 BOARD
R/G/B VIDEO CABLE COMPENSATOR
EN VIDEO CABLE COMPENSATOR
CABLE COMPENSATOR CTL GENERATOR
CN14
CAMERA
(WIRING SIDE)
R.VIDEO(X)
2-5
2-6
Q105, Q106
FLOATING AMP
(DIFF)
Q52
AMP
BUFF
Q53 ~ Q57
R142 ~ R148
CABLE COMP
0m CONT
10m CONT
25m CONT
50m CONT
100m CONT
Q58
R BUFF
Q59
MIX AMP
Q60
R BUFF
RV6
R.GAIN
Q61~Q67
LINE DRIVER
B.VIDEO(X)
2-3
2-4
Q107, Q108
FLOATING AMP
(DIFF)
Q68
AMP
BUFF
Q69~Q73
R171~R177
CABLE COMP
Q74
B BUFF
Q75
MIX AMP
Q76
B BUFF
RV8
B.GAIN
Q77~Q83
LINE DRIVER
G.VIDEO(X)
2-1
2-2
Q109, Q110
FLOATING AMP
(DIFF)
Q84
AMP
BUFF
Q85 ~ Q89
R200~R206
CABLE COMP
Q90
G BUFF
Q91
MIX AMP
Q92
G BUFF
RV10
G.GAIN
Q93~Q99
LINE DRIVER
PS-27
6-1
DC SENSE
1-1
EN VIDEO(X)
2-7
2-8
Q101, Q102
FLOATING AMP
(DIFF)
Q22
AMP
BUFF
Q23~Q27
R88~R94
CABLE COMP
Q28
VIDEO BUFF
Q29
MIX AMP
Q30
VIDEO BUFF
DL1
DELAY 200ns
Q31, Q32
VIDEO BUFF
IC8
PEDESTAL SET
Q33, C4
SAMPLE HOLD
REF.
C39, L3, R108
SC TRAP
IC1
BURST GATE PULSE GEN
D3
DIODE CLAMP
Q8
VIDEO AMP
C17, L2
SC TRAP
Q100
Y BUFF
Q12
BACK PORCH CLAMP
Q9
Y BUFF
Q10, Q11
SYNC SEP
IC1
INV
BURST GATE "H";ON
+9V
RV1
BURST
DC OFFSET
Q5
Q4
DC BUFF
BURST
Q2, Q3
BURST GATE
(NAM)
TP1
C3, L1, R7
*BPF
* 3.58 MHz
4.43 MHz
Q1
VIDEO BUFF

PR-44 BLOCK
CCU-M3 (J)
CCU-M3 (USA/CND)
CCU-M3P (AEP)
CCU-M3P (UK)

4-2. PR-44 BOARD BLOCK DIAGRAM VIDEO CABLE COMPENSATOR

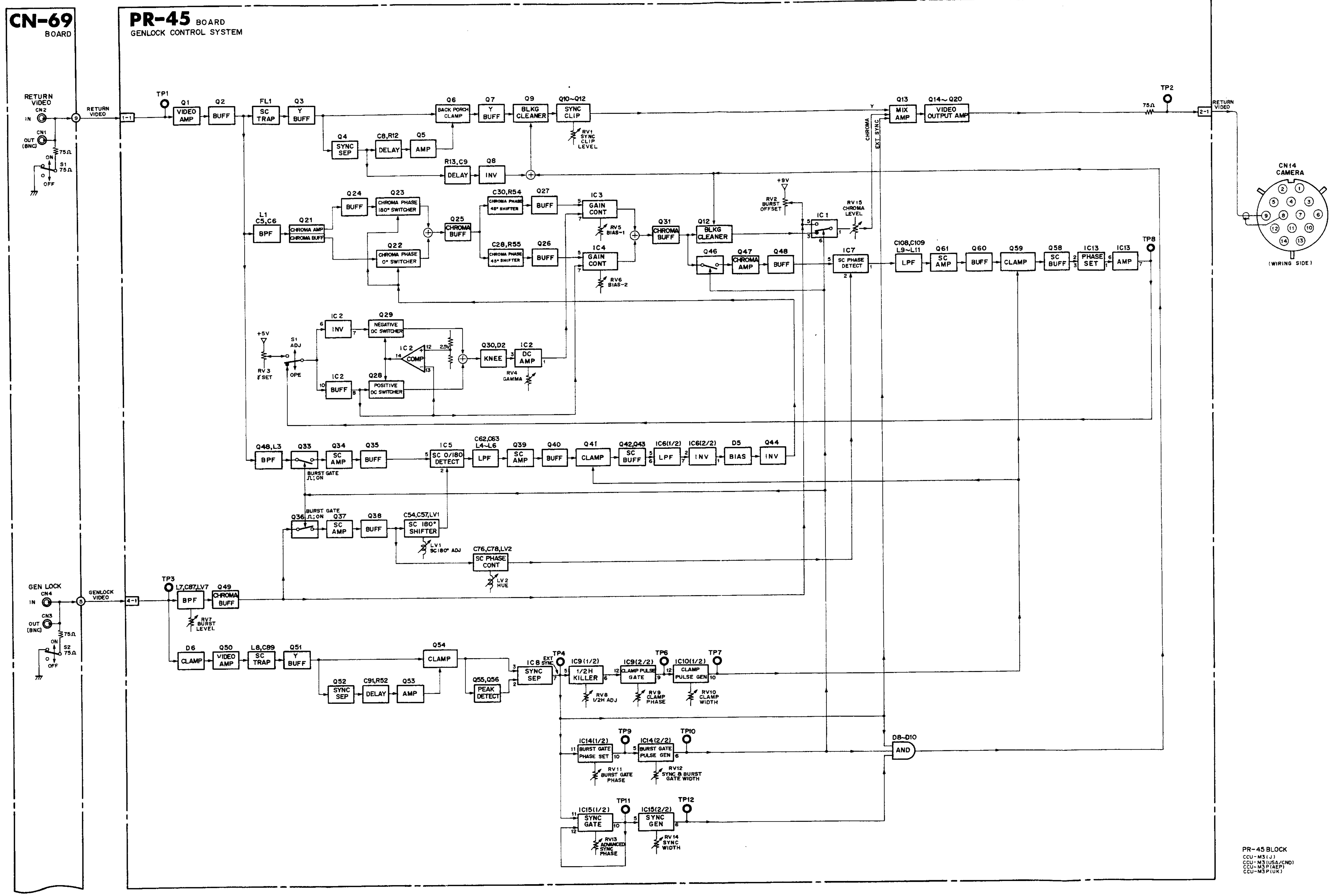

PR-44 BOARD
R/G/B VIDEO CABLE COMPENSATOR
EN VIDEO CABLE COMPENSATOR
CABLE COMPENSATOR CTL GENERATOR
CN-69 BOARD
CN14 CAMERA
(WIRING SIDE)
R.VIDEO (X)
B.VIDEO (X)
G.VIDEO (X)
EN VIDEO (X)
PS-27
DC SENSE
Q105, Q106 FLOATING AMP (DIFF)
Q52 AMP BUFF
Q53 ~ Q57 R142 ~ R148 CABLE COMP
0m CONT
10m CONT
25m CONT
50m CONT
100m CONT
Q58 R BUFF
Q59 MIX AMP
Q60 R BUFF
RV6 R.GAIN
Q61~Q67 LINE DRIVER
TP13
R.VIDEO
CN7 R (BNC)
Q107, Q108 FLOATING AMP (DIFF)
Q68 AMP BUFF
Q69~Q73 R171~R177 CABLE COMP
Q74 B BUFF
Q75 MIX AMP
Q76 B BUFF
RV8 B.GAIN
Q77~Q83 LINE DRIVER
TP4
B.VIDEO
CN8 B (BNC)
Q109, Q110 FLOATING AMP (DIFF)
Q84 AMP BUFF
Q85 ~ Q89 R200~R206 CABLE COMP
Q90 G BUFF
Q91 MIX AMP
Q92 G BUFF
RV10 G.GAIN
Q93~Q99 LINE DRIVER
TP15
G.VIDEO
CN9 G (BNC)
Q103, Q104 VF VIDEO OUTPUT AMP
VF VIDEO
RV5 VBS VIDEO LEVEL
Q45~Q51 VBS VIDEO OUTPUT AMP
TP12
VBS VIDEO
CN6 VBS (BNC)
Q101, Q102 FLOATING AMP (DIFF)
Q22 AMP BUFF
Q23~Q27 R88~R94 CABLE COMP
Q28 VIDEO BUFF
Q29 MIX AMP
Q30 VIDEO BUFF
DL1 DELAY 200ns
Q31, Q32 VIDEO BUFF
EN VIDEO
Q36, Q37 NAM
SYNC
RV4 VBS/VB VIDEO LEVEL
Q38~Q44 VBS/VB VIDEO OUTPUT AMP
75
TP11
VBS/VB VIDEO
CN5 VBS/VB (BNC)
IC8 PEDESTAL SET
Q33, C4 SAMPLE HOLD
REF.
C39, L3, R108 SC TRAP
IC1 BURST GATE PULSE GEN
+5V
RV3 SYNC DC OFF SET
IC8 DC BUFF
D1, Q34 SYNC REJECT PULSE GEN
Q35
VB ON/OFF
IC1 SYNC INV
VBS/VB
ON/OFF CONT
S3
VB; ON
D3 DIODE CLAMP
Q8 VIDEO AMP
C17, L2 SC TRAP
Q100 Y BUFF
Q12 BACK PORCH CLAMP
Q13 BUFF
Q14, C22, C23, R50 PEAK DETECT
Q15~Q18 SYNC SEP
Q19~Q21 SYNC DRIVER
56
SYNC
CN10 SYNC OUT (BNC)
Q9 Y BUFF
Q10, Q11 SYNC SEP
IC1 INV
BURST GATE "H"; ON
+9V
RV1 BURST DC OFFSET
Q5
Q4 DC BUFF
Q1 VIDEO BUFF
BURST LEVEL DETECT
Q2, Q3 BURST GATE (NAM)
TP1
C3, L1, R7 * BPF
* 3.58MHz (NTSC) 4.43MHz (PAL)
Q6 SC AMP
Q7 BUFF
D1 RECT
IC2 DC BUFF
TP2
CABLE COMP SELECTOR
IC2 BURST LEVEL COMPARATOR
RV2 CABLE LENGTH
CTL-1
CTL-2
CTL-3
CTL-4
IC3, IC4 NAND GATE
IC5 HEXADECIMAL TRIG GEN (A.M.V)
IC7 HEXA-U/D DECIMAL SWITCH
IC6 CABLE COMP CTL LEV.SET
TP9 TP8 TP7 TP6 TP5
CN13 VF
(WIRING SIDE)

COMP SELECT	CTL 1	CTL 2	CTL 3	CTL 4	T	U/D	C1	A	B	C	OUTPUT (HIGH)
0 m	L	H	L	H	↑	L	H	L	L	L	TP9
25 m	L	H	L	L	↑	L	H	H	L	L	TP8
50 m	L	H	L	L	↑	L	H	L	H	L	TP7
75 m	L	H	L	L	↑	L	H	H	H	L	TP6
100m	L	H	H	L	↑	L	H	L	L	H	TP5

(H : 9V)

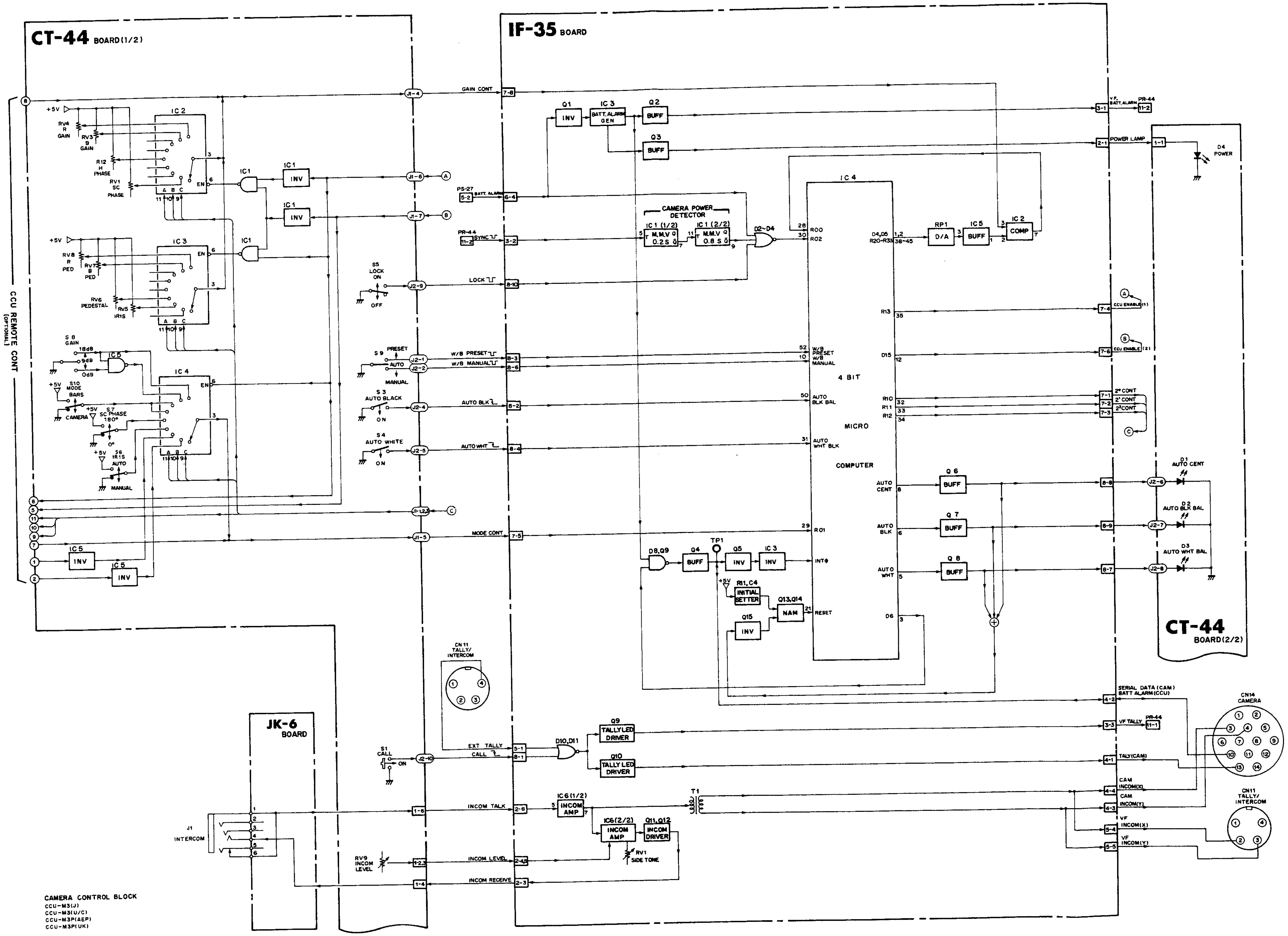
PR-44 BLOCK
CCU-M3 (J)
CCU-M3 (USA/CND)
CCU-M3P (AEP)
CCU-M3P (UK)

4-3. PR-45 BOARD BLOCK DIAGRAM
RETURN VIDEO AMPLIFIER

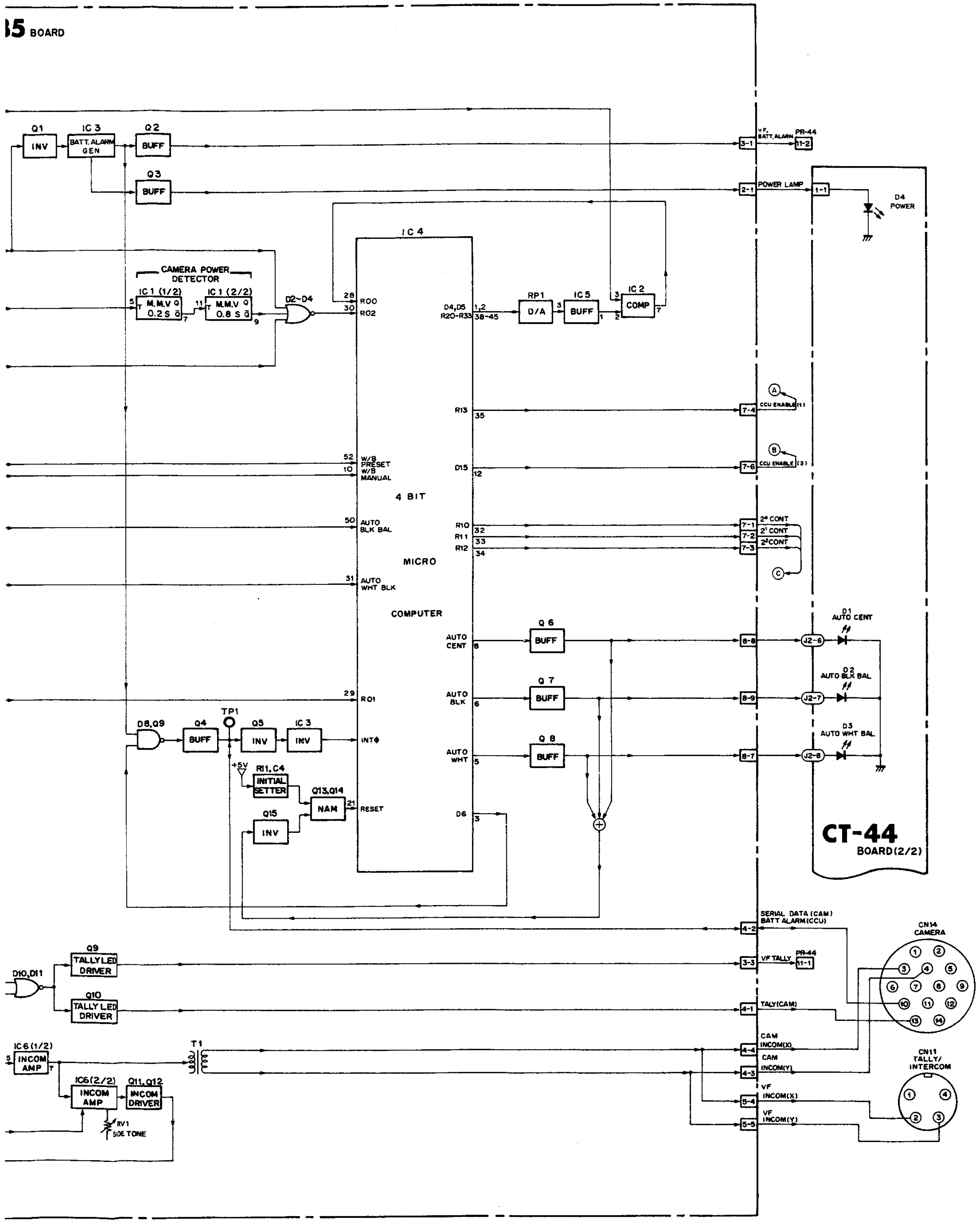

CN-69 BOARD
PR-45 BOARD
GENLOCK CONTROL SYSTEM
RETURN VIDEO
CN2
IN
CN1
OUT (BNC)
75Ω
ON
S1 75Ω
OFF
9
RETURN VIDEO
1-1
TP1
Q1 VIDEO AMP
Q2 BUFF
FL1 SC TRAP
Q3 Y BUFF
Q4 SYNC SEP
C8,R12 DELAY
Q5 AMP
Q6 BACK PORCH CLAMP
Q7 Y BUFF
Q9 BLKG CLEANER
Q10~Q12 SYNC CLIP
RV1 SYNC CLIP LEVEL
R13,C9 DELAY
Q8 INV
Y
CHROMA
EXT SYNC
Q13 MIX AMP
Q14~Q20 VIDEO OUTPUT AMP
75Ω
TP2
2-1
RETURN VIDEO
CN14 CAMERA
(WIRING SIDE)
L1 C5,C6 BPF
Q21 CHROMA AMP CHROMA BUFF
Q24 BUFF
Q23 CHROMA PHASE 180° SWITCHER
Q22 CHROMA PHASE 0° SWITCHER
Q25 CHROMA BUFF
C30,R54 CHROMA PHASE 45° SHIFTER
Q27 BUFF
C28,R55 CHROMA PHASE 45° SHIFTER
Q26 BUFF
IC3 GAIN CONT
RV5 BIAS-1
IC4 GAIN CONT
RV6 BIAS-2
Q31 CHROMA BUFF
Q12 BLKG CLEANER
+9V
RV2 BURST OFFSET
IC1
RV15 CHROMA LEVEL
Q46
Q47 CHROMA AMP
Q48 BUFF
IC7 SC PHASE DETECT
C108,C109 L9~L11 LPF
Q61 SC AMP
Q60 BUFF
Q59 CLAMP
Q58 SC BUFF
IC13 PHASE SET
IC13 AMP
TP8
+5V
RV3 γ SET
S1 ADJ
OPE
IC2 INV
Q29 NEGATIVE DC SWITCHER
IC2 COMP
2.5V
IC2 BUFF
Q28 POSITIVE DC SWITCHER
Q30,D2 KNEE
IC2 DC AMP
RV4 GAMMA
Q48,L3 BPF
Q33
BURST GATE ⎍; ON
Q34 SC AMP
Q35 BUFF
IC5 SC 0/180 DETECT
C62,C63 L4~L6 LPF
Q39 SC AMP
Q40 BUFF
Q41 CLAMP
Q42,Q43 SC BUFF
IC6(1/2) LPF
IC6(2/2) INV
D5 BIAS
Q44 INV
BURST GATE ⎍; ON
Q36
Q37 SC AMP
Q38 BUFF
C54,C57,LV1 SC 180° SHIFTER
LV1 SC180° ADJ
C76,C78,LV2 SC PHASE CONT
LV2 HUE
GEN LOCK
CN4
IN
CN3
OUT (BNC)
75Ω
ON
S2 75Ω
OFF
5
GENLOCK VIDEO
4-1
TP3
L7,C87,LV7 BPF
RV7 BURST LEVEL
Q49 CHROMA BUFF
D6 CLAMP
Q50 VIDEO AMP
L8,C89 SC TRAP
Q51 Y BUFF
Q52 SYNC SEP
C91,R52 DELAY
Q53 AMP
Q54 CLAMP
Q55,Q56 PEAK DETECT
IC8 SYNC SEP
EXT SYNC
TP4
IC9(1/2) 1/2H KILLER
RV8 1/2H ADJ
IC9(2/2) CLAMP PULSE GATE
RV9 CLAMP PHASE
TP6
IC10(1/2) CLAMP PULSE GEN
RV10 CLAMP WIDTH
TP7
IC14(1/2) BURST GATE PHASE SET
RV11 BURST GATE PHASE
TP9
IC14(2/2) BURST GATE PULSE GEN
RV12 SYNC & BURST GATE WIDTH
TP10
IC15(1/2) SYNC GATE
RV13 ADVANCED SYNC PHASE
TP11
IC15(2/2) SYNC GEN
RV14 SYNC WIDTH
TP12
D8~D10 AND

PR-45 BLOCK
CCU-M3(J)
CCU-M3(USA/CND)
CCU-M3P(AEP)
CCU-M3P(UK)

4-4. CAMERA CONTROL BLOCK DIAGRAM


CT-44 BOARD(1/2)
CCU REMOTE CONT [OPTIONAL]
+5V
RV4 R GAIN
RV3 B GAIN
R12 H PHASE
RV1 SC PHASE
IC2
EN
A B C
IC1
INV
RV8 R PED
RV7 B PED
RV6 PEDESTAL
RV5 IRIS
IC3
S8 GAIN
18dB
9dB
0dB
IC5
IC4
S10 MODE
BARS
CAMERA
S7 SC PHASE
180°
0°
S6 IRIS
AUTO
MANUAL
IC5
INV
J1-4
J1-6
J1-7
J2-9
J2-1
J2-2
J2-4
J2-8
J1-2,3
J1-5
S5 LOCK
ON
OFF
S9 PRESET
AUTO
MANUAL
S3 AUTO BLACK
ON
S4 AUTO WHITE
ON
GAIN CONT
PS-27
BATT. ALARM
PR-44
SYNC
LOCK
W/B PRESET
W/B MANUAL
AUTO BLK
AUTO WHT
MODE CONT
IF-35 BOARD
Q1 INV
IC3 BATT. ALARM GEN
Q2 BUFF
Q3 BUFF
CAMERA POWER DETECTOR
IC1 (1/2) M.M.V 0.2S
IC1 (2/2) M.M.V 0.8S
D2~D4
IC4
4 BIT MICRO COMPUTER
R00
R02
W/B PRESET
W/B MANUAL
AUTO BLK BAL
AUTO WHT BLK
R01
INT
RESET
D4,D5 R20-R33
RP1 D/A
IC5 BUFF
IC2 COMP
R13
D15
R10
R11
R12
AUTO CENT
AUTO BLK
AUTO WHT
D6
Q6 BUFF
Q7 BUFF
Q8 BUFF
D8,Q9
Q4 BUFF
TP1
Q5 INV
IC3 INV
R11,C4 INITIAL SETTER
Q13,Q14 NAM
Q15 INV
V.F. BATT. ALARM
PR-44
POWER LAMP
D4 POWER
CCU ENABLE(1)
CCU ENABLE(2)
2⁰ CONT
2¹ CONT
2² CONT
D1 AUTO CENT
D2 AUTO BLK BAL
D3 AUTO WHT BAL
CT-44 BOARD(2/2)
CN11 TALLY/INTERCOM
EXT TALLY
CALL
S1 CALL
ON
D10,D11
Q9 TALLY LED DRIVER
Q10 TALLY LED DRIVER
SERIAL DATA (CAM) BATT ALARM (CCU)
VF TALLY
TALLY(CAM)
CN14 CAMERA
JK-6 BOARD
J1 INTERCOM
INCOM TALK
IC6(1/2) INCOM AMP
T1
IC6(2/2) INCOM AMP
Q11,Q12 INCOM DRIVER
RV1 SIDE TONE
RV9 INCOM LEVEL
INCOM LEVEL
INCOM RECEIVE
CAM INCOM(X)
CAM INCOM(Y)
VF INCOM(X)
VF INCOM(Y)
CN11 TALLY/INTERCOM

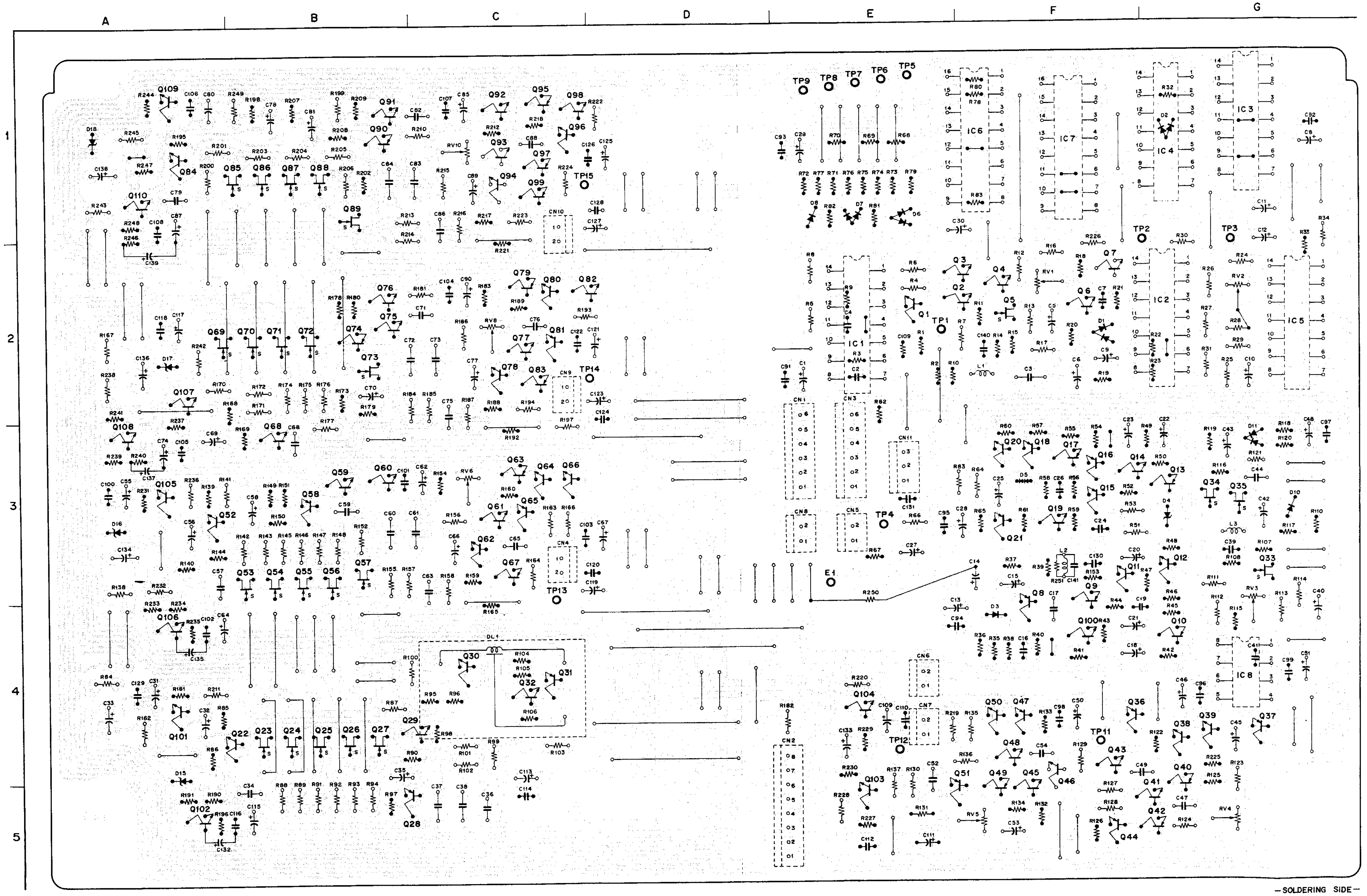
CAMERA CONTROL BLOCK
CCU-M3(J)
CCU-M3(U/C)
CCU-M3P(AEP)
CCU-M3P(UK)


5 BOARD
Q1
INV
IC 3
BATT. ALARM GEN
Q2
BUFF
Q3
BUFF
3-1
V.F. BATT. ALARM
PR-44
11-2
2-1
POWER LAMP
1-1
D4
POWER
IC 4
CAMERA POWER DETECTOR
IC 1 (1/2)
M.M.V
0.2 S
IC 1 (2/2)
M.M.V
0.8 S
D2~D4
28
R00
30
R02
D4, D5
R20-R33
1,2
38-45
RP1
D/A
IC 5
BUFF
IC 2
COMP
R13
35
7-4
CCU ENABLE (1)
52
W/B PRESET
10
W/B MANUAL
D15
12
7-6
CCU ENABLE (2)
4 BIT
50
AUTO BLK BAL
R10
R11
R12
32
33
34
7-1
7-2
7-3
2⁰ CONT
2¹ CONT
2² CONT
MICRO
31
AUTO WHT BLK
COMPUTER
AUTO CENT
Q 6
BUFF
8-8
J2-6
D1
AUTO CENT
29
R01
AUTO BLK
Q 7
BUFF
8-9
J2-7
D2
AUTO BLK BAL
D8, Q9
Q4
BUFF
TP1
Q5
INV
IC 3
INV
INTΦ
AUTO WHT
Q 8
BUFF
8-7
J2-8
D3
AUTO WHT BAL
+5V
R11, C4
INITIAL SETTER
Q13, Q14
NAM
21
RESET
D6
Q15
INV
CT-44
BOARD (2/2)
4-2
SERIAL DATA (CAM)
BATT ALARM (CCU)
CN14
CAMERA
Q9
TALLY LED DRIVER
3-3
VF TALLY
PR-44
11-1
D10, D11
Q10
TALLY LED DRIVER
4-1
TALY (CAM)
IC6 (1/2)
INCOM AMP
T1
4-4
CAM INCOM (X)
4-3
CAM INCOM (Y)
CN11
TALLY/ INTERCOM
IC6 (2/2)
INCOM AMP
Q11, Q12
INCOM DRIVER
RV1
SIDE TONE
5-4
VF INCOM (X)
5-5
VF INCOM (Y)

SECTION 5
SCHEMATIC DIAGRAM AND MOUNTED BOARDS

5-1. PR-44 BOARD VIDEO CABLE COMPENSATOR MOUNTING DIAGRAM

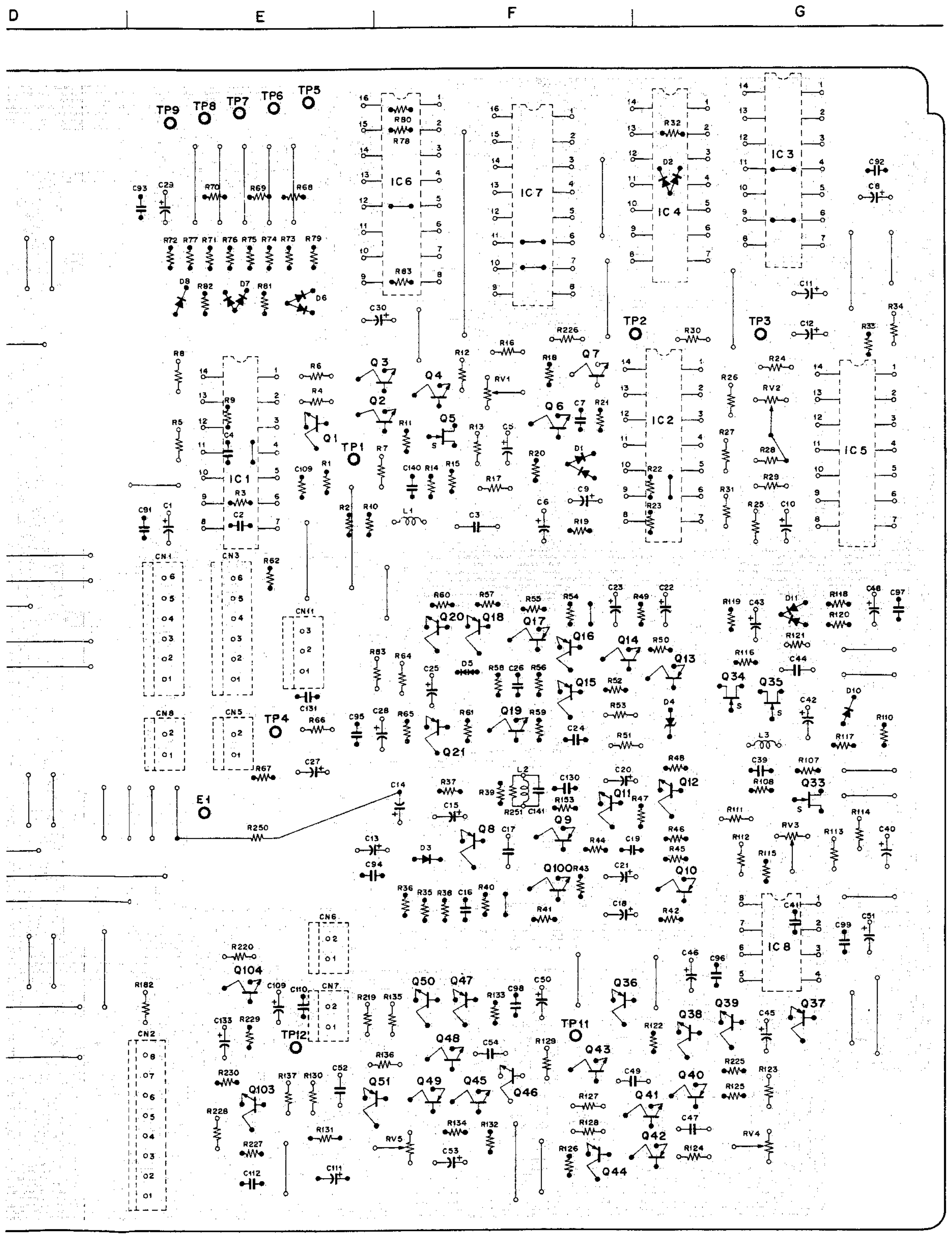
SERIAL NO. Up to 10320 (AEP)
SERIAL NO. Up to 10070 (UK)


A
B
C
D
E
F
G
1
2
3
4
5
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
CN9
CN10
CN11
TP1
TP2
TP3
TP4
TP5
TP6
TP7
TP8
TP9
TP11
TP12
TP13
TP14
TP15
E1
DL1
RV1
RV2
RV3
RV4
RV5
RV6
RV8
RV10

—SOLDERING SIDE—
PR-44 BOARD
1-610-449-11

CCU-M3(J) 10001 ~ 10120
CCU-M3(U/C) 10001 ~ 10450
CCU-M3P(AEP) 10001 ~ 10320
CCU-M3P(UK) 10001 ~ 10070

CN1	E - 3
CN2	E - 5
CN3	E - 3
CN4	C - 3
CN5	E - 3
CN6	E - 4
CN7	E - 4
CN8	E - 3
CN9	C - 2
CN10	C - 1
CN11	E - 3
D1	F - 2
D2	G - 1
D3	F - 4
D4	G - 3
D5	F - 3
D6	E - 1
D7	E - 1
D8	E - 1
D10	G - 3
D11	G - 3
D15	A - 4
D16	A - 3
D17	A - 2
D18	A - 1
DL1	C - 4
E1	E - 3
IC1	E - 2
IC2	G - 2
IC3	G - 1
IC4	G - 1
IC5	G - 2
IC6	F - 1
IC7	F - 1
IC8	G - 4
Q1	E - 2
Q2	F - 2
Q3	F - 2
Q4	F - 2
Q5	F - 2
Q6	F - 2
Q7	F - 2
Q8	F - 4
Q9	F - 4
Q10	G - 4
Q11	F - 3
Q12	G - 3
Q13	G - 3
Q14	F - 3
Q15	F - 3
Q16	F - 3
Q17	F - 3
Q18	F - 3
Q19	F - 3
Q20	F - 3
Q21	F - 3
Q22	B - 4
Q23	B - 4
Q24	B - 4
Q25	B - 4
Q26	B - 4
Q27	B - 4
Q28	B - 5
Q29	C - 4
Q30	C - 4
Q31	C - 4
Q32	C - 4
Q33	G - 3
Q34	G - 3
Q35	G - 3
Q36	F - 4
Q37	G - 4
Q38	G - 4
Q39	G - 4
Q40	G - 5
Q41	G - 5
Q42	G - 5
Q43	F - 4
Q44	F - 5
Q45	F - 5
Q46	F - 4
Q47	F - 4
Q48	F - 4
Q49	F - 5
Q50	F - 4
Q51	E - 5
Q52	A - 3
Q53	B - 3
Q54	B - 3
Q55	B - 3
Q56	B - 3
Q57	B - 3
Q58	B - 3
Q59	B - 3
Q60	B - 3
Q61	C - 3
Q62	C - 3
Q63	C - 3
Q64	C - 3
Q65	C - 3
Q66	C - 3
Q67	C - 3
Q68	B - 3
Q69	A - 2
Q70	B - 2
Q71	B - 2
Q72	B - 2
Q73	B - 2
Q74	B - 2
Q75	B - 2
Q76	B - 2
Q77	C - 2
Q78	C - 2
Q79	C - 2
Q80	C - 2
Q81	C - 2
Q82	D - 2
Q83	C - 2
Q84	A - 1
Q85	B - 1
Q86	B - 1
Q87	B - 1
Q88	B - 1
Q89	B - 1
Q90	B - 1
Q91	B - 1
Q92	C - 1
Q93	C - 1
Q94	C - 1
Q95	C - 1
Q96	C - 1
Q97	C - 1
Q98	C - 1
Q99	C - 1
Q100	F - 4
Q101	A - 4
Q102	A - 5
Q103	E - 5
Q104	E - 4
Q105	A - 3
Q106	A - 4
Q107	A - 2
Q108	A - 3
Q109	A - 1
Q110	A - 1
RV1	F - 2
RV2	G - 2
RV3	G - 4
RV4	G - 5
RV5	F - 5
RV6	C - 3
RV8	C - 2
RV10	C - 1
TP1	E - 2
TP2	G - 2
TP3	G - 2
TP4	E - 3
TP5	E - 1
TP6	E - 1
TP7	E - 1
TP8	E - 1
TP9	E - 1
TP11	F - 4
TP12	E - 4
TP13	C - 4
TP14	D - 2
TP15	C - 1


D
E
F
G
TP9
TP8
TP7
TP6
TP5
TP1
TP2
TP3
TP4
TP11
TP12
E1
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
CN1
CN2
CN3
CN5
CN6
CN7
CN8
CN11
RV1
RV2
RV3
RV4
RV5
L1
L2
L3

— SOLDERING SIDE —

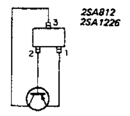
PR-44 BOARD

1-610-449-11

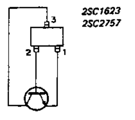
CCU-M3(J) 10001 ~ 10120
CCU-M3(U/C) 10001 ~ 10450
CCU-M3P(AEP) 10001 ~ 10320
CCU-M3P(UK) 10001 ~ 10070

CN1	E - 3
CN2	E - 5
CN3	E - 3
CN4	C - 3
CN5	E - 3
CN6	E - 4
CN7	E - 4
CN8	E - 3
CN9	C - 2
CN10	C - 1
CN11	E - 3
D1	F - 2
D2	G - 1
D3	F - 4
D4	G - 3
D5	F - 3
D6	E - 1
D7	E - 1
D8	E - 1
D10	G - 3
D11	G - 3
D15	A - 4
D16	A - 3
D17	A - 2
D18	A - 1
DL1	C - 4
E1	E - 3
IC1	E - 2
IC2	G - 2
IC3	G - 1
IC4	G - 1
IC5	G - 2
IC6	F - 1
IC7	F - 1
IC8	G - 4
Q1	E - 2
Q2	F - 2
Q3	F - 2
Q4	F - 2
Q5	F - 2
Q6	F - 2
Q7	F - 2
Q8	F - 4
Q9	F - 4
Q10	G - 4
Q11	F - 3
Q12	G - 3
Q13	G - 3
Q14	F - 3
Q15	F - 3
Q16	F - 3
Q17	F - 3
Q18	F - 3
Q19	F - 3
Q20	F - 3
Q21	F - 3
Q22	B - 4
Q23	B - 4
Q24	B - 4
Q25	B - 4
Q26	B - 4
Q27	B - 4
Q28	B - 5
Q29	C - 4
Q30	C - 4
Q31	C - 4
Q32	C - 4
Q33	G - 3
Q34	G - 3
Q35	G - 3
Q36	F - 4
Q37	G - 4
Q38	G - 4
Q39	G - 4
Q40	G - 5
Q41	G - 5
Q42	G - 5
Q43	F - 4
Q44	F - 5
Q45	F - 5
Q46	F - 4
Q47	F - 4
Q48	F - 4
Q49	F - 5
Q50	F - 4
Q51	E - 5
Q52	A - 3
Q53	B - 3
Q54	B - 3
Q55	B - 3
Q56	B - 3
Q57	B - 3
Q58	B - 3
Q59	B - 3
Q60	B - 3
Q61	C - 3
Q62	C - 3
Q63	C - 3
Q64	C - 3
Q65	C - 3
Q66	C - 3
Q67	C - 3
Q68	B - 3
Q69	A - 2
Q70	B - 2
Q71	B - 2
Q72	B - 2
Q73	B - 2
Q74	B - 2
Q75	B - 2
Q76	B - 2
Q77	C - 2
Q78	C - 2
Q79	C - 2
Q80	C - 2
Q81	C - 2
Q82	D - 2
Q83	C - 2
Q84	A - 1
Q85	B - 1
Q86	B - 1
Q87	B - 1
Q88	B - 1
Q89	B - 1
Q90	B - 1
Q91	B - 1
Q92	C - 1
Q93	C - 1
Q94	C - 1
Q95	C - 1
Q96	C - 1
Q97	C - 1
Q98	C - 1
Q99	C - 1
Q100	F - 4
Q101	A - 4
Q102	A - 5
Q103	E - 5
Q104	E - 4
Q105	A - 3
Q106	A - 4
Q107	A - 2
Q108	A - 3
Q109	A - 1
Q110	A - 1
RV1	F - 2
RV2	G - 2
RV3	G - 4
RV4	G - 5
RV5	F - 5
RV6	C - 3
RV8	C - 2
RV10	C - 1
TP1	E - 2
TP2	G - 2
TP3	G - 2
TP4	E - 3
TP5	E - 1
TP6	E - 1
TP7	E - 1
TP8	E - 1
TP9	E - 1
TP11	F - 4
TP12	E - 4
TP13	C - 4
TP14	D - 2
TP15	C - 1

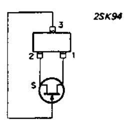
TOP VIEW (SCALE 4/1)


3
2
1
2SA812
2SA1226

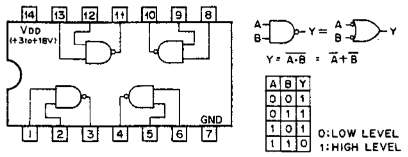
TOP VIEW (SCALE 4/1)


3
2
1
2SC1623
2SC2757

TOP VIEW (SCALE 4/1)



TC4011BP (TOSHIBA)
C-MOS 2-INPUT NAND GATE
— TOP VIEW —

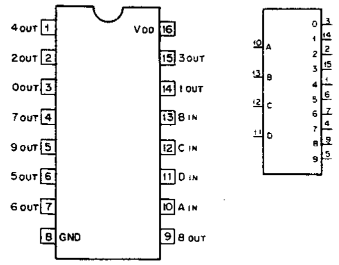

14
13
12
11
10
9
8
VDD (+3to+18V)
GND
1
2
3
4
5
6
7
A
B
Y
Y = A B Y

$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0:LOW LEVEL
1:HIGH LEVEL

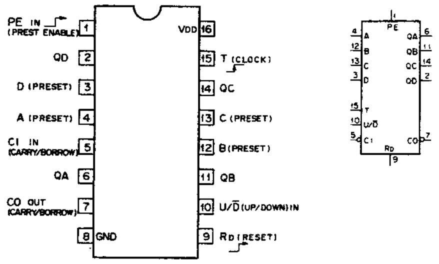
TC4028BP (TOSHIBA)
C-MOS BCD TO DECIMAL DECODER
—TOP VIEW—


4OUT 1
2OUT 2
0OUT 3
7OUT 4
9OUT 5
5OUT 6
6OUT 7
8 GND
VDD 16
15 3OUT
14 1OUT
13 B IN
12 C IN
11 D IN
10 A IN
9 8 OUT
A
B
C
D
0
1
2
3
4
5
6
7
8
9

STATE	INPUTS				OUTPUTS									
	D	C	B	A	0	1	2	3	4	5	6	7	8	9
0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
1	0	0	0	1	0	1	0	0	0	0	0	0	0	0
2	0	0	1	0	0	0	1	0	0	0	0	0	0	0
3	0	0	1	1	0	0	0	1	0	0	0	0	0	0
4	0	1	0	0	0	0	0	0	1	0	0	0	0	0
5	0	1	0	1	0	0	0	0	0	1	0	0	0	0
6	0	1	1	0	0	0	0	0	0	0	1	0	0	0
7	0	1	1	1	0	0	0	0	0	0	0	1	0	0
8	1	X	X	0	0	0	0	0	0	0	0	0	1	0
9	1	X	X	1	0	0	0	0	0	0	0	0	0	1

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

TC4516BP (TOSHIBA)
C-MOS PRESETTABLE BINARY UP/DOWN COUNTER
—TOP VIEW—


PE IN (PREST ENABLE) 1
QD 2
D (PRESET) 3
A (PRESET) 4
CI IN (CARRY/BORROW) 5
QA 6
CO OUT (CARRY/BORROW) 7
8 GND
VDD 16
15 T (CLOCK)
14 QC
13 C (PRESET)
12 B (PRESET)
11 QB
10 U/D (UP/DOWN) IN
9 RD (RESET)
PE
QA
QB
QC
QD
T
U/D
CI
RD
CO

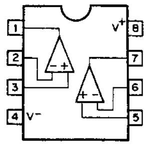
INPUTS					OUTPUTS			
T	RD	PE	CI	U/$\overline{D}$	QD	QC	QB	QA
X	1	X	X	X	0	0	0	0
X	0	1	X	X	SET TO A,B,C,D			
_↑	0	0	0	1	COUNT UP			
_↑	0	0	0	0	COUNT DOWN			
0	0	0	X	X	NO CHANGE			
X	0	0	1	X	NO CHANGE			

CO = L
CI = L & (DOWN · COUNT "0" OR UP · COUNT "15")

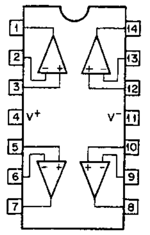
COUNT	OUTPUTS			
	QD	QC	QB	QA
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

COUNT UP ↓
COUNT DOWN ↑

TL082CP (TI)
OPERATIONAL AMPLIFIER
(JEFT-INPUT)
— TOP VIEW —

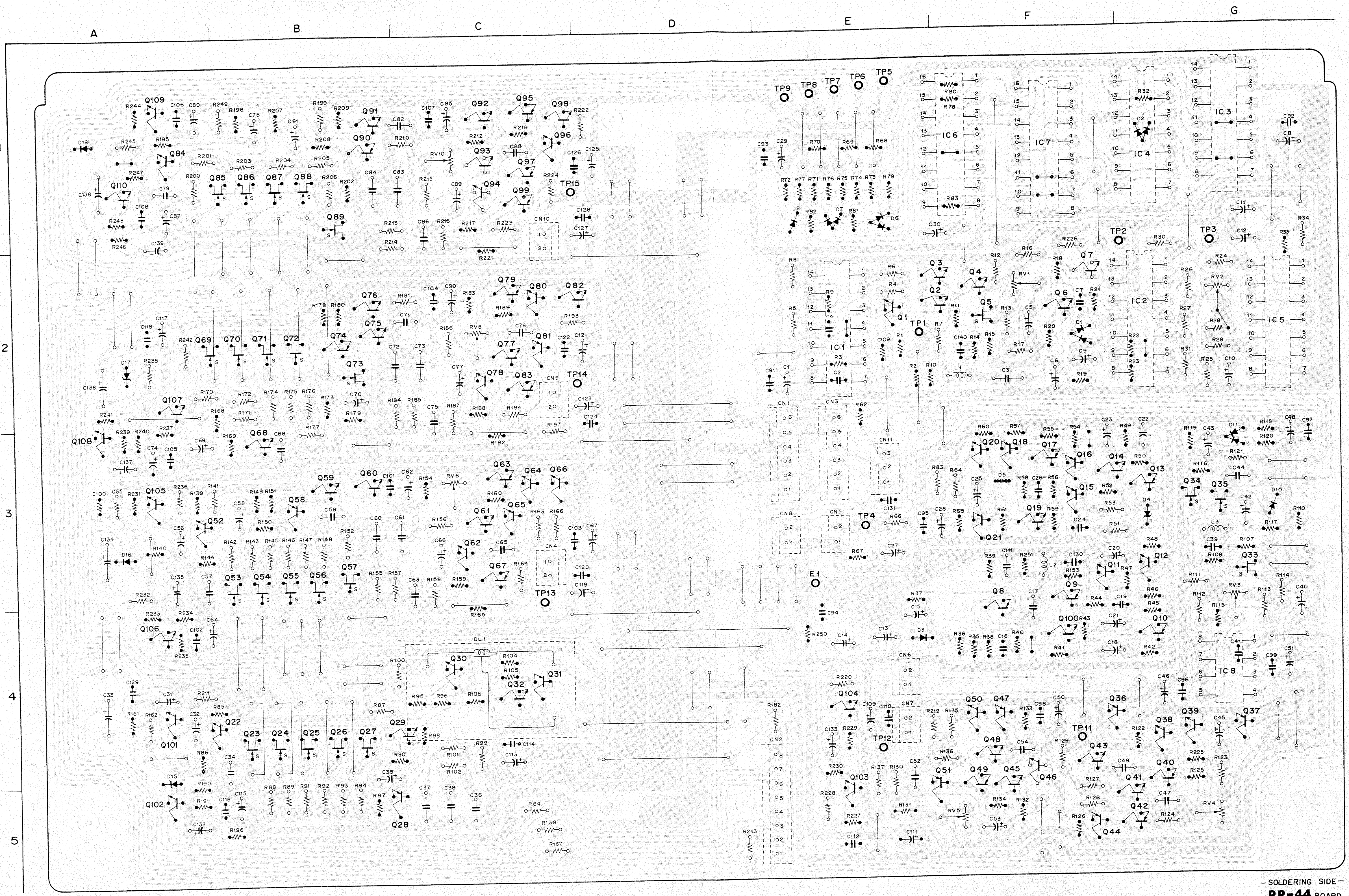

1
2
3
4
V-
8
7
6
5
V+

TL084CN (TI)
OPERATIONAL AMPLIFIER
(JFET - INPUT)
—TOP VIEW—


1
2
3
4
5
6
7
V+
14
13
12
11
10
9
8
V-

5-1. PR-44 BOARD VIDEO CABLE COMPENSATOR MOUNTING DIAGRAM

SERIAL NO. 10321 and higher (AEP)
SERIAL NO. 10071 and higher (UK)



— SOLDERING SIDE —

PR-44 BOARD

1-610-449-12

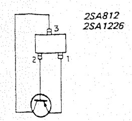
CCU-M3(J) 10121 ~
CCU-M3(U/C) 10451 ~
CCU-M3P(AEP) 10321 ~
CCU-M3P(UK) 10071 ~

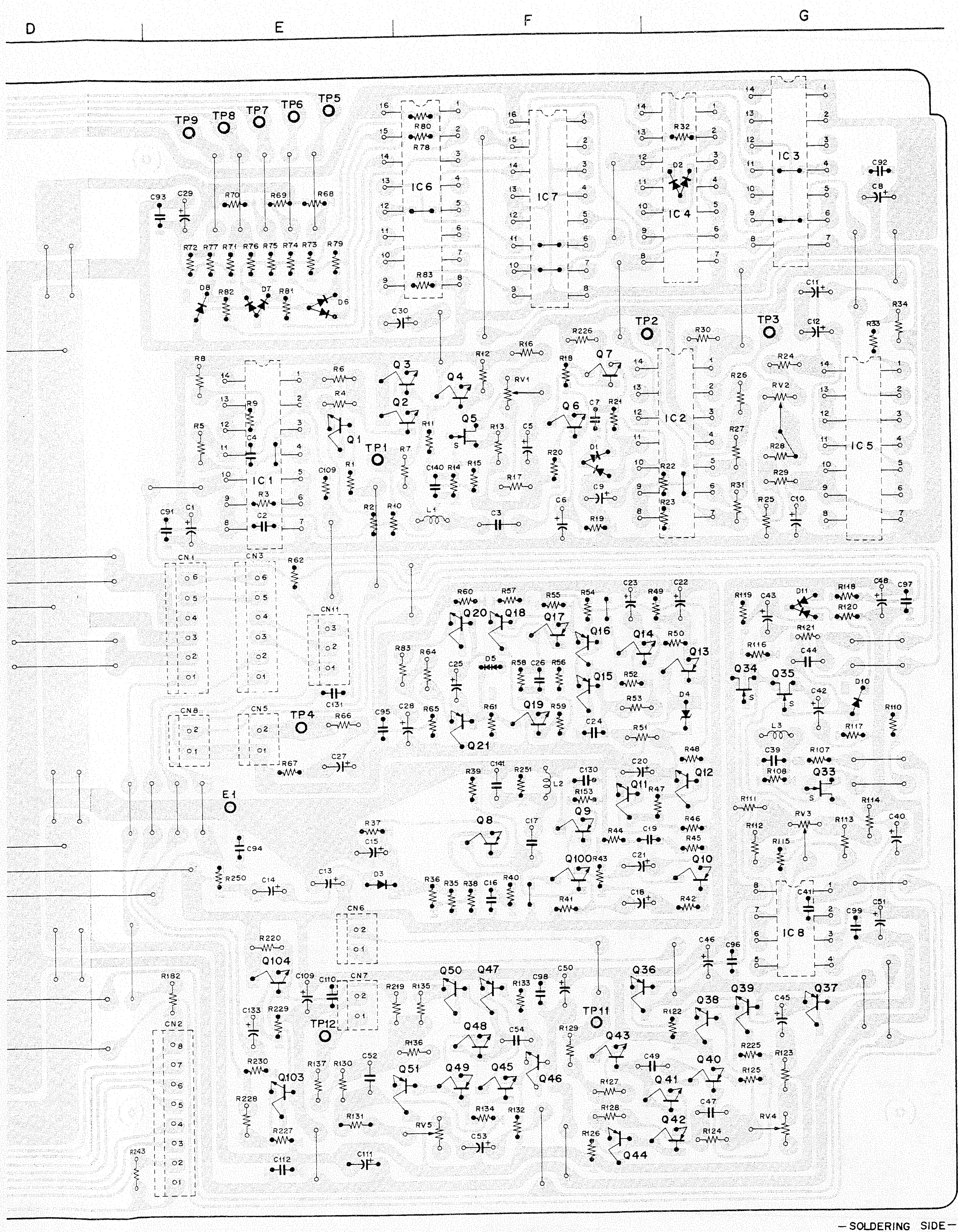
5-1(b)

5-2(b)

CN1	E - 3
CN2	E - 5
CN3	E - 3
CN4	C - 3
CN5	E - 3
CN6	E - 4
CN7	E - 4
CN8	E - 3
CN9	C - 2
CN10	C - 1
CN11	E - 3
D1	F - 2
D2	G - 1
D3	E - 4
D4	G - 3
D5	F - 3
D6	E - 1
D7	E - 1
D8	E - 1
D10	G - 3
D11	G - 3
D15	A - 4
D16	A - 3
D17	A - 2
D18	A - 1
DL1	C - 4
E1	E - 3
IC1	E - 2
IC2	G - 2
IC3	G - 1
IC4	G - 1
IC5	G - 2
IC6	F - 1
IC7	F - 1
IC8	G - 4
Q1	E - 2
Q2	F - 2
Q3	F - 2
Q4	F - 2
Q5	F - 2
Q6	F - 2
Q7	F - 2
Q8	F - 4
Q9	F - 4
Q10	G - 4
Q11	F - 3
Q12	G - 3
Q13	G - 3
Q14	F - 3
Q15	F - 3
Q16	F - 3
Q17	F - 3
Q18	F - 3
Q19	F - 3
Q20	F - 3
Q21	F - 3
Q22	B - 4
Q23	B - 4
Q24	B - 4
Q25	B - 4
Q26	B - 4
Q27	B - 4
Q28	B - 5
Q29	C - 4
Q30	C - 4
Q31	C - 4
Q32	C - 4
Q33	G - 3
Q34	G - 3
Q35	G - 3
Q36	F - 4
Q37	G - 4
Q38	G - 4
Q39	G - 4
Q40	G - 5
Q41	G - 5
Q42	G - 5
Q43	F - 4
Q44	F - 5
Q45	F - 5
Q46	F - 4
Q47	F - 4
Q48	F - 4
Q49	F - 5
Q50	F - 4
Q51	E - 5
Q52	A - 3
Q53	B - 3
Q54	B - 3
Q55	B - 3
Q56	B - 3
Q57	B - 3
Q58	B - 3
Q59	B - 3
Q60	B - 3
Q61	C - 3
Q62	C - 3
Q63	C - 3
Q64	C - 3
Q65	C - 3
Q66	C - 3
Q67	C - 3
Q68	B - 3
Q69	A - 2
Q70	B - 2
Q71	B - 2
Q72	B - 2
Q73	B - 2
Q74	B - 2
Q75	B - 2
Q76	B - 2
Q77	C - 2
Q78	C - 2
Q79	C - 2
Q80	C - 2
Q81	C - 2
Q82	D - 2
Q83	C - 2
Q84	A - 1
Q85	B - 1
Q86	B - 1
Q87	B - 1
Q88	B - 1
Q89	B - 1
Q90	B - 1
Q91	B - 1
Q92	C - 1
Q93	C - 1
Q94	C - 1
Q95	C - 1
Q96	C - 1
Q97	C - 1
Q98	C - 1
Q99	C - 1
Q100	F - 4
Q101	A - 4
Q102	A - 5
Q103	E - 5
Q104	E - 4
Q105	A - 3
Q106	A - 4
Q107	A - 2
Q108	A - 3
Q109	A - 1
Q110	A - 1
RV1	F - 2
RV2	G - 2
RV3	G - 4
RV4	G - 5
RV5	F - 5
RV6	C - 3
RV8	C - 2
RV10	C - 1
TP1	E - 2
TP2	G - 2
TP3	G - 2
TP4	E - 3
TP5	E - 1
TP6	E - 1
TP7	E - 1
TP8	E - 1
TP9	E - 1
TP11	F - 4
TP12	E - 4
TP13	C - 4
TP14	D - 2
TP15	C - 1

TOP VIEW (SCALE 4/1)




D
E
F
G
TP9
TP8
TP7
TP6
TP5
TP1
TP2
TP3
TP4
TP11
TP12
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
CN1
CN2
CN3
CN5
CN6
CN7
CN8
CN11
E1

— SOLDERING SIDE —

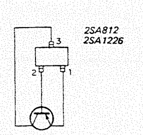
PR-44 BOARD

1-610-449-12

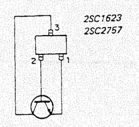
CCU-M3(J) 10121 ~
CCU-M3(U/C) 10451 ~
CCU-M3P(AEP) 10321 ~
CCU-M3P(UK) 10071 ~

CN1	E - 3
CN2	E - 5
CN3	E - 3
CN4	C - 3
CN5	E - 3
CN6	E - 4
CN7	E - 4
CN8	E - 3
CN9	C - 2
CN10	C - 1
CN11	E - 3
D1	F - 2
D2	G - 1
D3	E - 4
D4	G - 3
D5	F - 3
D6	E - 1
D7	E - 1
D8	E - 1
D10	G - 3
D11	G - 3
D15	A - 4
D16	A - 3
D17	A - 2
D18	A - 1
DL1	C - 4
E1	E - 3
IC1	E - 2
IC2	G - 2
IC3	G - 1
IC4	G - 1
IC5	G - 2
IC6	F - 1
IC7	F - 1
IC8	G - 4
Q1	E - 2
Q2	F - 2
Q3	F - 2
Q4	F - 2
Q5	F - 2
Q6	F - 2
Q7	F - 2
Q8	F - 4
Q9	F - 4
Q10	G - 4
Q11	F - 3
Q12	G - 3
Q13	G - 3
Q14	F - 3
Q15	F - 3
Q16	F - 3
Q17	F - 3
Q18	F - 3
Q19	F - 3
Q20	F - 3
Q21	F - 3
Q22	B - 4
Q23	B - 4
Q24	B - 4
Q25	B - 4
Q26	B - 4
Q27	B - 4
Q28	B - 5
Q29	C - 4
Q30	C - 4
Q31	C - 4
Q32	C - 4
Q33	G - 3
Q34	G - 3
Q35	G - 3
Q36	F - 4
Q37	G - 4
Q38	G - 4
Q39	G - 4
Q40	G - 5
Q41	G - 5
Q42	G - 5
Q43	F - 4
Q44	F - 5
Q45	F - 5
Q46	F - 4
Q47	F - 4
Q48	F - 4
Q49	F - 5
Q50	F - 4
Q51	E - 5
Q52	A - 3
Q53	B - 3
Q54	B - 3
Q55	B - 3
Q56	B - 3
Q57	B - 3
Q58	B - 3
Q59	B - 3
Q60	B - 3
Q61	C - 3
Q62	C - 3
Q63	C - 3
Q64	C - 3
Q65	C - 3
Q66	C - 3
Q67	C - 3
Q68	B - 3
Q69	A - 2
Q70	B - 2
Q71	B - 2
Q72	B - 2
Q73	B - 2
Q74	B - 2
Q75	B - 2
Q76	B - 2
Q77	C - 2
Q78	C - 2
Q79	C - 2
Q80	C - 2
Q81	C - 2
Q82	D - 2
Q83	C - 2
Q84	A - 1
Q85	B - 1
Q86	B - 1
Q87	B - 1
Q88	B - 1
Q89	B - 1
Q90	B - 1
Q91	B - 1
Q92	C - 1
Q93	C - 1
Q94	C - 1
Q95	C - 1
Q96	C - 1
Q97	C - 1
Q98	C - 1
Q99	C - 1
Q100	F - 4
Q101	A - 4
Q102	A - 5
Q103	E - 5
Q104	E - 4
Q105	A - 3
Q106	A - 4
Q107	A - 2
Q108	A - 3
Q109	A - 1
Q110	A - 1
RV1	F - 2
RV2	G - 2
RV3	G - 4
RV4	G - 5
RV5	F - 5
RV6	C - 3
RV8	C - 2
RV10	C - 1
TP1	E - 2
TP2	G - 2
TP3	G - 2
TP4	E - 3
TP5	E - 1
TP6	E - 1
TP7	E - 1
TP8	E - 1
TP9	E - 1
TP11	F - 4
TP12	E - 4
TP13	C - 4
TP14	D - 2
TP15	C - 1

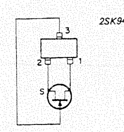
TOP VIEW (SCALE 4/1)


3
2
1
2SA812
2SA1226

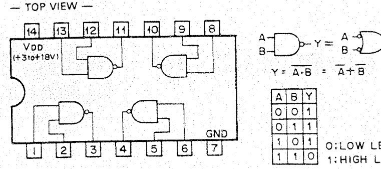
TOP VIEW (SCALE 4/1)


3
2
1
2SC1623
2SC2757

TOP VIEW (SCALE 4/1)



TC4011BP (TOSHIBA)
C-MOS 2-INPUT NAND GATE
— TOP VIEW —

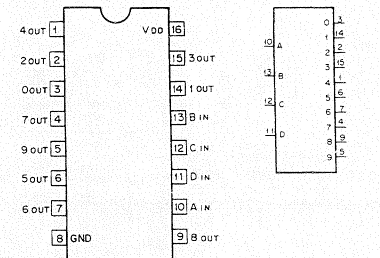

14
13
12
11
10
9
8
VDD
(+3to+18V)
GND
1
2
3
4
5
6
7
A
B
Y
Y =

$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0:LOW LEVEL
1:HIGH LEVEL

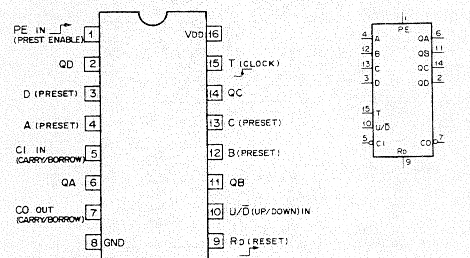
TC4028BP (TOSHIBA)
C-MOS BCD TO DECIMAL DECODER
—TOP VIEW—


4 OUT 1
2 OUT 2
0 OUT 3
7 OUT 4
9 OUT 5
5 OUT 6
6 OUT 7
8 GND
16 VDD
15 3 OUT
14 1 OUT
13 B IN
12 C IN
11 D IN
10 A IN
9 8 OUT
A
B
C
D

STATE	INPUTS				OUTPUTS									
	D	C	B	A	0	1	2	3	4	5	6	7	8	9
0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
1	0	0	0	1	0	1	0	0	0	0	0	0	0	0
2	0	0	1	0	0	0	1	0	0	0	0	0	0	0
3	0	0	1	1	0	0	0	1	0	0	0	0	0	0
4	0	1	0	0	0	0	0	0	1	0	0	0	0	0
5	0	1	0	1	0	0	0	0	0	1	0	0	0	0
6	0	1	1	0	0	0	0	0	0	0	1	0	0	0
7	0	1	1	1	0	0	0	0	0	0	0	1	0	0
8	1	X	X	0	0	0	0	0	0	0	0	0	1	0
9	1	X	X	1	0	0	0	0	0	0	0	0	0	1

0;LOW LEVEL
1;HIGH LEVEL
X;DON'T CARE

TC4516BP (TOSHIBA)
C-MOS PRESETTABLE BINARY UP/DOWN COUNTER
—TOP VIEW—


PE IN (PREST ENABLE) 1
QD 2
D (PRESET) 3
A (PRESET) 4
CI IN (CARRY/BORROW) 5
QA 6
CO OUT (CARRY/BORROW) 7
8 GND
16 VDD
15 T (CLOCK)
14 QC
13 C (PRESET)
12 B (PRESET)
11 QB
10 U/D̄ (UP/DOWN) IN
9 RD (RESET)
PE
QA
QB
QC
QD
T
U/D
CI
RD
CO

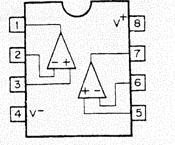
INPUTS					OUTPUTS			
T	RD	PE	CI	U/D̄	QD	QC	QB	QA
X	1	X	X	X	0	0	0	0
X	0	1	X	X	SET TO A,B,C,D			
↑	0	0	0	1	COUNT UP			
↑	0	0	0	0	COUNT DOWN			
0	0	0	X	X	NO CHANGE			
X	0	0	1	X	NO CHANGE			

COUNT	OUTPUTS			
	QD	QC	QB	QA
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

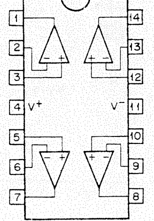
COUNT UP ↓
COUNT DOWN ↑

CO=L
CI=L &(DOWN·COUNT "0" OR UP·COUNT "15")

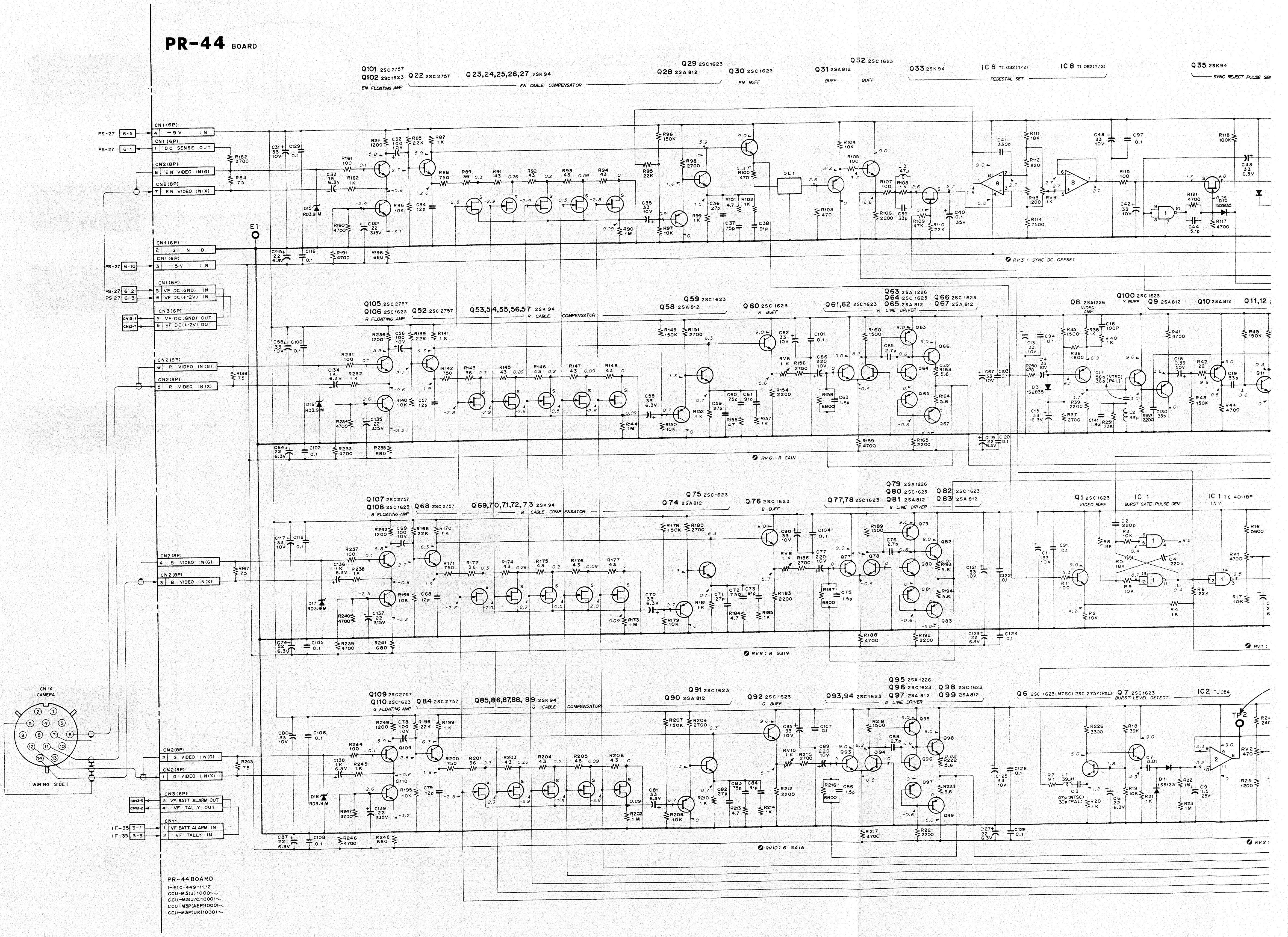
TL082CP (TI)
OPERATIONAL AMPLIFIER
(JEFT-INPUT)
— TOP VIEW —

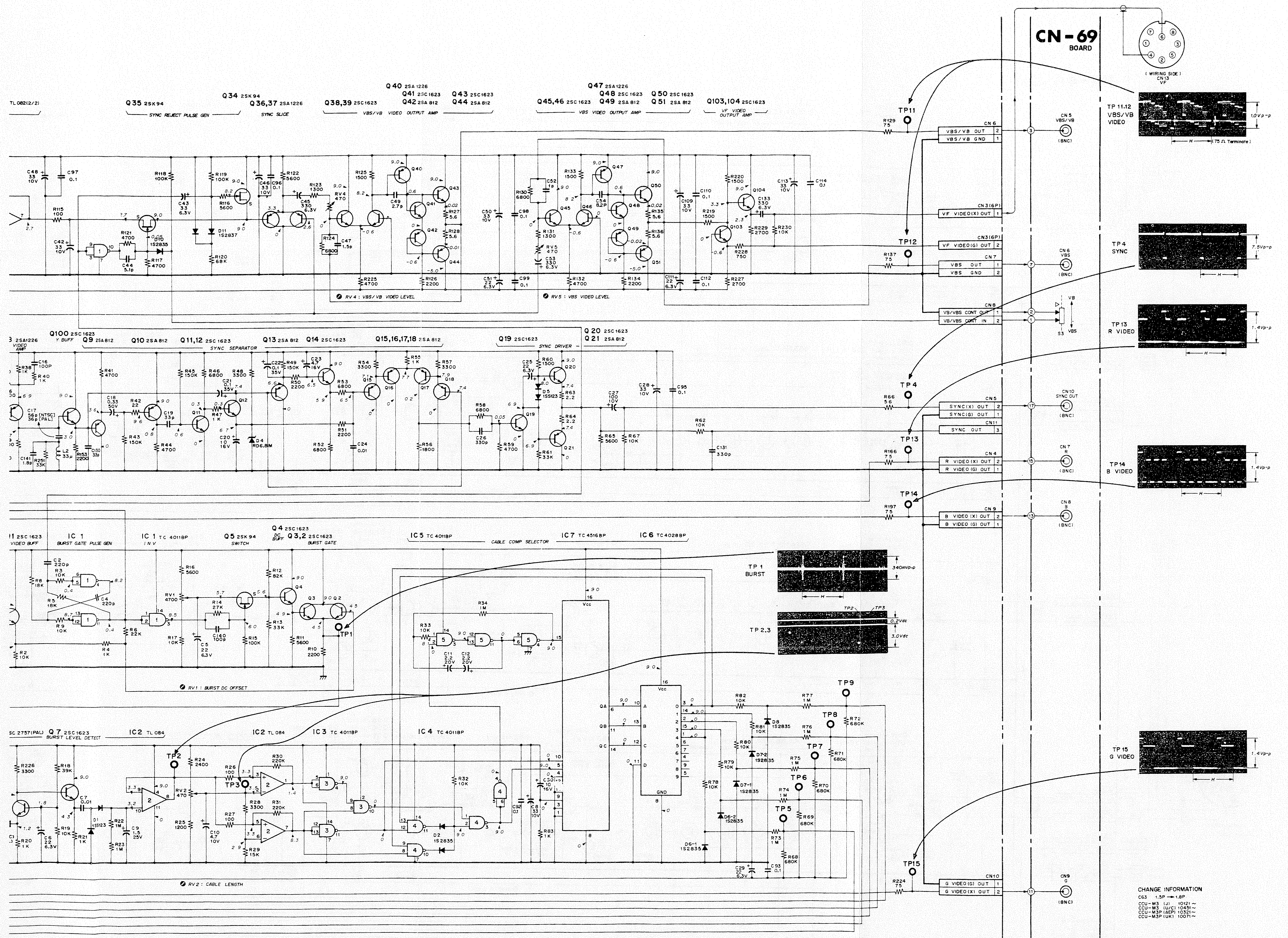

1
2
3
4
V−
V+
8
7
6
5

TL084CN (TI)
OPERATIONAL AMPLIFIER
(JFET - INPUT)
— TOP VIEW —


1
2
3
4
V+
5
6
7
14
13
12
V−
11
10
9
8

SCHEMATIC DIAGRAM


PR-44 BOARD
Q101 2SC2757
Q102 2SC1623
EN FLOATING AMP
Q22 2SC2757
Q23,24,25,26,27 2SK94
EN CABLE COMPENSATOR
Q29 2SC1623
Q28 2SA812
Q30 2SC1623
EN BUFF
Q31 2SA812
BUFF
Q32 2SC1623
BUFF
Q33 2SK94
IC8 TL082(1/2)
IC8 TL082(2/2)
PEDESTAL SET
Q35 2SK94
SYNC REJECT PULSE GEN
CN1(6P)
4 +9V IN
1 DC SENSE OUT
CN2(8P)
8 EN VIDEO IN(G)
7 EN VIDEO IN(X)
2 G N D
3 -5V IN
5 VF DC(GND) IN
6 VF DC(+12V) IN
CN3(6P)
5 VF DC(GND) OUT
6 VF DC(+12V) OUT
6 R VIDEO IN(G)
5 R VIDEO IN(X)
4 B VIDEO IN(G)
3 B VIDEO IN(X)
2 G VIDEO IN(G)
1 G VIDEO IN(X)
3 VF BATT ALARM OUT
4 VF TALLY OUT
CN11
1 VF BATT ALARM IN
2 VF TALLY IN
PS-27 6-5
PS-27 6-1
PS-27 6-10
PS-27 6-2
PS-27 6-3
CN13-1
CN13-7
CN8-5
CN8-2
IF-35 3-1
IF-35 3-3
E1
DL1
RV3 : SYNC DC OFFSET
Q105 2SC2757
Q106 2SC1623
R FLOATING AMP
Q52 2SC2757
Q53,54,55,56,57 2SK94
R CABLE COMPENSATOR
Q59 2SC1623
Q58 2SA812
Q60 2SC1623
R BUFF
Q61,62 2SC1623
Q63 2SA1226
Q64 2SC1623
Q65 2SA812
R LINE DRIVER
Q66 2SC1623
Q67 2SA812
RV6 : R GAIN
Q8 2SA1226
VIDEO AMP
Q100 2SC1623
Y BUFF
Q9 2SA812
Q10 2SA812
Q11,12
Q107 2SC2757
Q108 2SC1623
B FLOATING AMP
Q68 2SC2757
Q69,70,71,72,73 2SK94
B CABLE COMPENSATOR
Q75 2SC1623
Q74 2SA812
Q76 2SC1623
B BUFF
Q77,78 2SC1623
Q79 2SA1226
Q80 2SC1623
Q81 2SA812
B LINE DRIVER
Q82 2SC1623
Q83 2SA812
RV8 : B GAIN
Q1 2SC1623
VIDEO BUFF
IC1
BURST GATE PULSE GEN
IC1 TC4011BP
INV
RV1
Q109 2SC2757
Q110 2SC1623
G FLOATING AMP
Q84 2SC2757
Q85,86,87,88,89 2SK94
G CABLE COMPENSATOR
Q91 2SC1623
Q90 2SA812
Q92 2SC1623
G BUFF
Q93,94 2SC1623
Q95 2SA1226
Q96 2SC1623
Q97 2SA812
G LINE DRIVER
Q98 2SC1623
Q99 2SA812
RV10 : G GAIN
Q6 2SC1623(NTSC) 2SC2757(PAL)
Q7 2SC1623
BURST LEVEL DETECT
IC2 TL084
TP2
RV2
CN14
CAMERA
(WIRING SIDE)
PR-44BOARD
1-610-449-11,12
CCU-M3(J)10001~
CCU-M3(U/C)10001~
CCU-M3P(AEP)10001~
CCU-M3P(UK)10001~

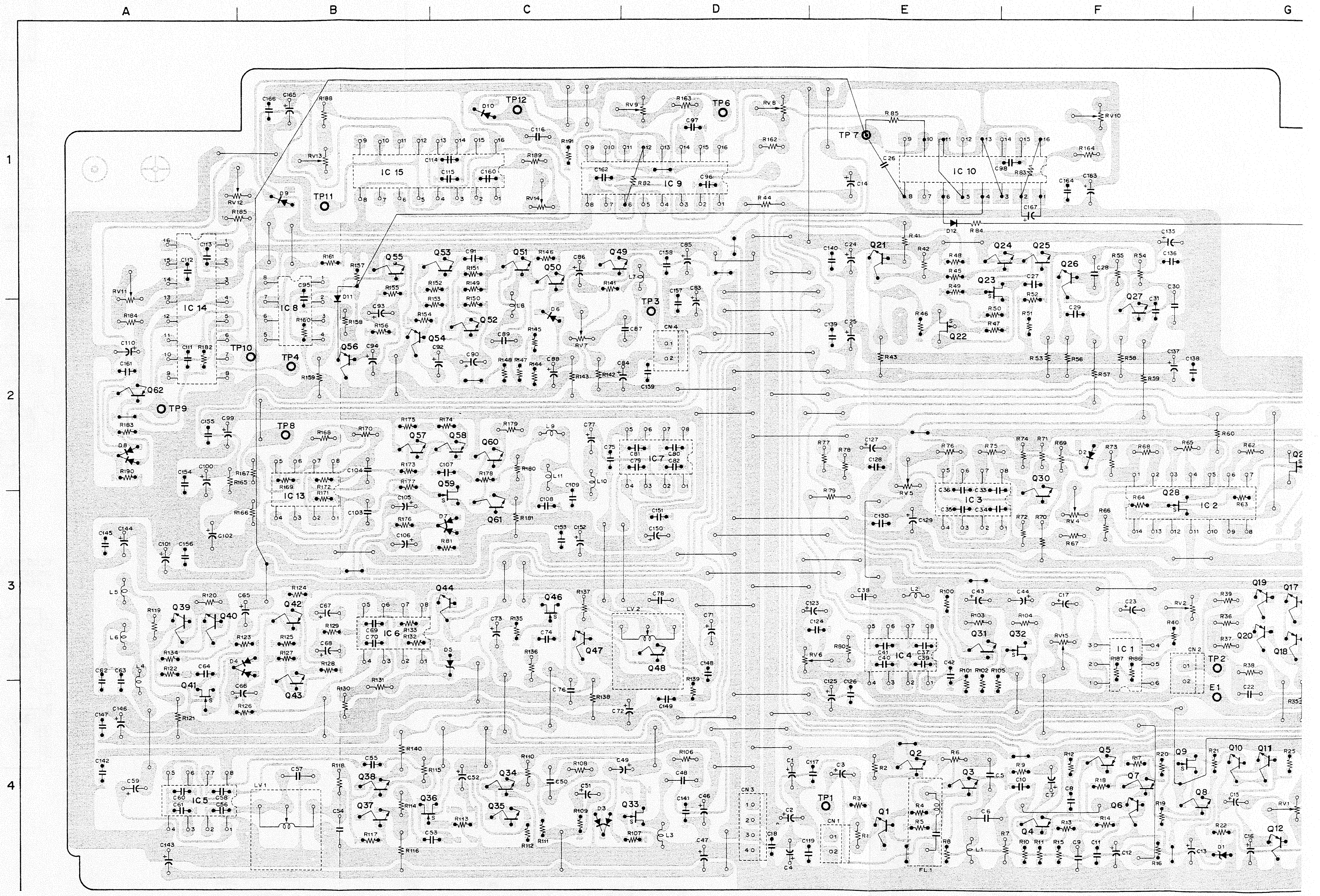

CN-69 BOARD
Q35 2SK94 SYNC REJECT PULSE GEN
Q34 2SK94 Q36,37 2SA1226 SYNC SLICE
Q38,39 2SC1623 VBS/VB VIDEO OUTPUT AMP
Q40 2SA1226 Q41 2SC1623 Q42 2SA812 Q43 2SC1623 Q44 2SA812
Q47 2SA1226 Q48 2SC1623 Q49 2SA812 Q50 2SC1623 Q51 2SA812
Q45,46 2SC1623 VBS VIDEO OUTPUT AMP
Q103,104 2SC1623 VF VIDEO OUTPUT AMP
RV4 : VBS/VB VIDEO LEVEL
RV5 : VBS VIDEO LEVEL
Q100 2SC1623 Y BUFF
Q9 2SA812 Q10 2SA812 Q11,12 2SC1623 SYNC SEPARATOR
Q13 2SA812 Q14 2SC1623 Q15,16,17,18 2SA812
Q19 2SC1623 SYNC DRIVER
Q20 2SC1623 Q21 2SA812
IC1 BURST GATE PULSE GEN
IC1 TC4011BP INV
Q5 2SK94 SWITCH
Q4 2SC1623 DC BUFF Q3,2 2SC1623 BURST GATE
IC5 TC4011BP IC7 TC4516BP IC6 TC4028BP CABLE COMP SELECTOR
RV1 : BURST DC OFFSET
Q7 2SC1623 BURST LEVEL DETECT
IC2 TL084 IC3 TC4011BP IC4 TC4011BP
RV2 : CABLE LENGTH
TP1 BURST
TP2,3
TP11,12 VBS/VB VIDEO
TP4 SYNC
TP13 R VIDEO
TP14 B VIDEO
TP15 G VIDEO
VBS/VB OUT
VBS/VB GND
VF VIDEO(X) OUT
VF VIDEO(G) OUT
VBS OUT
VBS GND
VB/VBS CONT OUT
VB/VBS CONT IN
SYNC(X) OUT
SYNC(G) OUT
SYNC OUT
R VIDEO(X) OUT
R VIDEO(G) OUT
B VIDEO(X) OUT
B VIDEO(G) OUT
G VIDEO(G) OUT
G VIDEO(X) OUT
(WIRING SIDE) CN13 VF
CHANGE INFORMATION
C63 1.5P → 1.8P

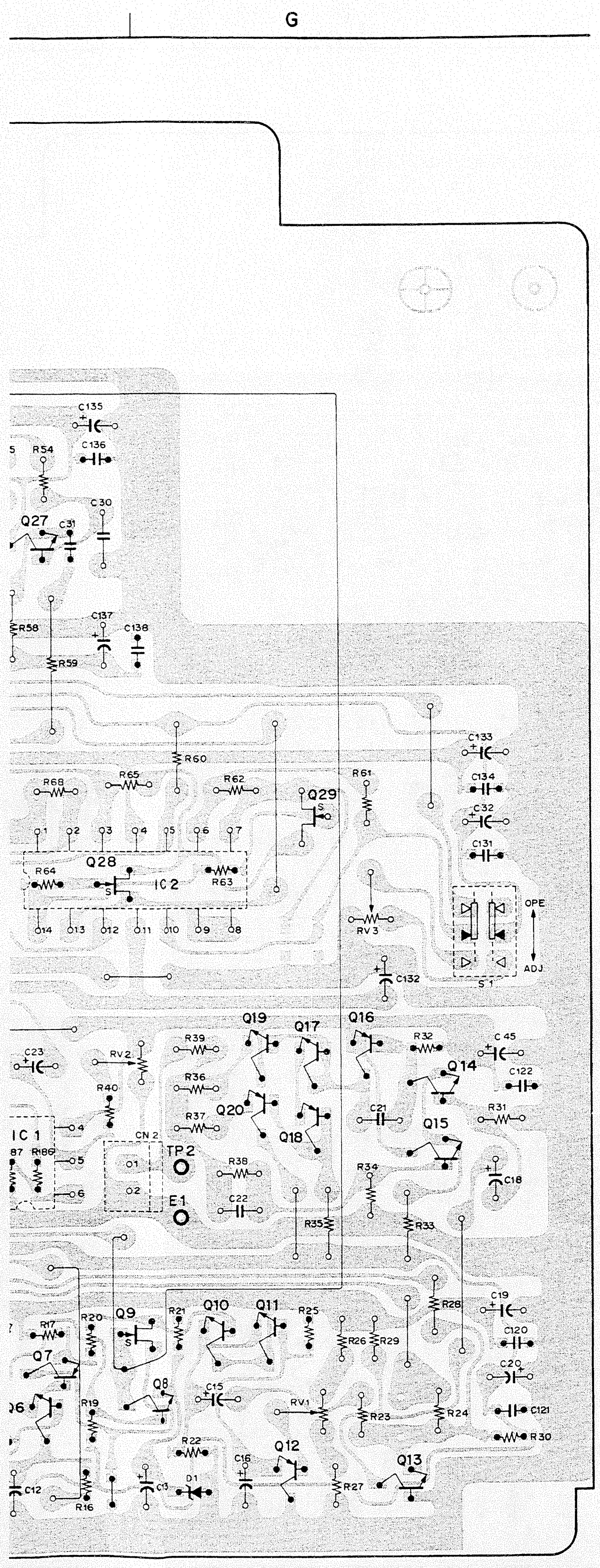
Note:

1. All voltages are dc, measured with a digital volt meter (input resistance 10 MΩ).
2. All waveforms are taken in conditions below.
   - Be sure that CCU-M3P is connected to DXC-M3P by the camera cable "CCQ-25AM"
   - Setting the switches on CCU
     MODE "BARS/CAMERA" SW: BARS
     LOCK SW: OFF
   - Setting the switches on CAMERA
     PRE HEAT SW: ON
     LENS "AUTO/MANU" SW: AUTO

5-2. PR-45 BOARD RETURN VIDEO AMPLIFIER MOUNTING DIAGRAM

SERIAL NO. Up to 10320 (AEP)
SERIAL NO. Up to 10070 (UK)


A
B
C
D
E
F
G
1
2
3
4
IC 15
IC 9
IC 10
IC 14
IC 8
IC 13
IC 7
IC 3
IC 2
IC 6
IC 4
IC 1
IC 5
TP12
TP6
TP 7
TP11
TP10
TP4
TP3
TP9
TP8
TP2
TP1
E1
CN 4
CN 3
CN 2
CN 1
LV 1
LV 2
FL 1


G
C135
C136
R54
C30
Q27
C31
C137
C138
R58
R59
C133
R60
R68
R65
R62
Q29
R61
C134
C32
C131
Q28
IC2
R64
R63
RV3
OPE
ADJ
S1
C132
Q19
Q17
Q16
R39
R32
C45
C23
RV2
Q14
C122
R36
R40
Q20
C21
R31
R37
Q15
IC1
CN2
TP2
Q18
R86
R38
R34
C18
E1
C22
R35
R33
C19
R28
Q9
R21
Q10
Q11
R25
R20
R26
R29
C120
Q7
C20
Q8
C15
RV1
R23
R24
C121
R19
R30
R22
Q12
C16
Q13
C12
C13
D1
R27
R16

— SOLDERING SIDE —

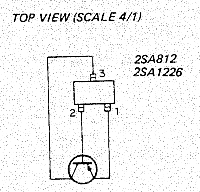
PR-45 BOARD

1-610-450-11

CCU-M3(J) 10001～10120
CCU-M3(U/C) 10001～10450
CCU-M3P(AEP) 10001～10320
CCU-M3P(UK) 10001～10070

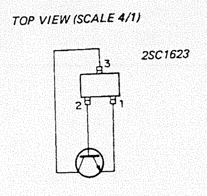
CN1	E - 4
CN2	F - 3
CN3	D - 4
CN4	D - 2
D1	G - 4
D2	F - 2
D3	C - 4
D4	A - 3
D5	B - 3
D6	C - 1
D7	B - 3
D8	A - 2
D9	B - 1
D10	C - 1
D11	B - 1
D12	E - 1
E1	G - 3
FL1	E - 4
IC1	F - 3
IC2	F - 2
IC3	E - 2
IC4	E - 3
IC5	A - 4
IC6	B - 3
IC7	D - 2
IC8	B - 1
IC9	D - 1
IC10	E - 1
IC14	A - 1
IC15	B - 1
LV1	B - 4
LV2	D - 3
Q1	E - 4
Q2	E - 4
Q3	E - 4
Q4	F - 4
Q5	F - 4
Q6	F - 4
Q7	F - 4
Q8	F - 4
Q9	F - 4
Q10	G - 4
Q11	G - 4
Q12	G - 4
Q13	G - 4
Q14	G - 3
Q15	G - 3
Q16	G - 3
Q17	G - 3
Q18	G - 3
Q19	G - 3
Q20	G - 3
Q21	E - 1
Q22	E - 2
Q23	E - 1
Q24	E - 1
Q25	F - 1
Q26	F - 1
Q27	F - 1
Q28	F - 2
Q29	G - 2
Q30	F - 2
Q31	E - 3
Q32	F - 3
Q33	C - 4
Q34	C - 4
Q35	C - 4
Q36	B - 4
Q37	B - 4
Q38	B - 4
Q39	A - 3
Q40	A - 3
Q41	A - 3
Q42	B - 3
Q43	B - 3
Q44	B - 3
Q46	C - 3
Q47	C - 3
Q48	D - 3
Q49	C - 1
Q50	C - 1
Q51	C - 1
Q52	C - 2
Q53	B - 1
Q54	B - 2
Q55	B - 1
Q56	B - 2
Q57	B - 2
Q58	C - 2
Q59	B - 2
Q60	C - 2
Q61	C - 2
Q62	A - 2
RV1	G - 4
RV2	F - 3
RV3	G - 3
RV4	F - 2
RV5	E - 2
RV6	D - 3
RV7	C - 2
RV8	D - 1
RV9	C - 1
RV10	F - 1
RV11	A - 1
RV12	A - 1
RV13	B - 1
RV14	C - 1
RV15	F - 3
S1	G - 3
TP1	D - 4
TP2	G - 3
TP3	D - 1
TP4	B - 2
TP6	D - 1
TP7	E - 1
TP8	B - 2
TP9	A - 2
TP10	A - 2
TP11	B - 1
TP12	C - 1

TOP VIEW (SCALE 4/1)

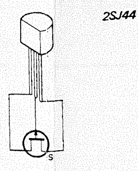


2SA812
2SA1226

TOP VIEW (SCALE 4/1)

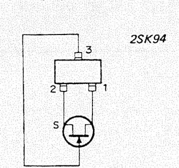


2SC1623



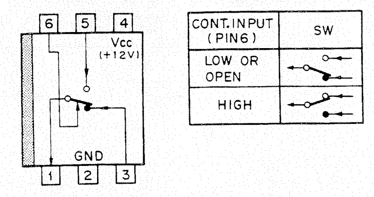
2SJ44

TOP VIEW (SCALE 4/1)

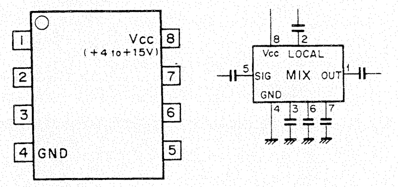


2SK94

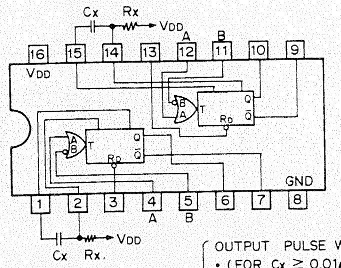
CX130 (SONY)
ANALOG SWITCH
— TOP VIEW —


6
5
4
Vcc
(+12V)
GND
1
2
3
CONT.INPUT (PIN6)
SW
LOW OR OPEN
HIGH

SN16913P (TI)
BALANCED MIXER
— TOP VIEW —


1
2
3
4
GND
Vcc
(+4 to +15V)
8
7
6
5
8
2
Vcc LOCAL
SIG
MIX
OUT
GND
4
3
6
7

TC4528BP (TOSHIBA)
C-MOS RETRIGGERABLE / RESETTABLE MMV
— TOP VIEW —

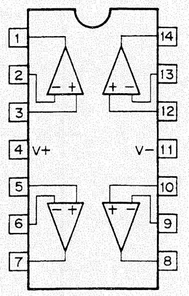

Cx
Rx
VDD
A
B
16
15
14
13
12
11
10
9
VDD
B
A
T
Q
$\overline{Q}$
RD
A
B
T
Q
$\overline{Q}$
RD
GND
1
2
3
4
5
6
7
8
A
B
Cx
Rx.
VDD

INPUTS			OUTPUTS	
A	B	RD	Q	$\overline{Q}$
↑	1	1	⊓	⊔
↑	0	1	Q	$\overline{Q}$
1	↓	1	Q	$\overline{Q}$
0	↓	1	⊓	⊔
X	X	0	0	1

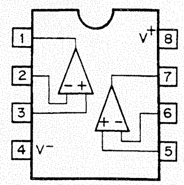
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

OUTPUT PULSE WIDTH Q OR $\overline{Q}$
- (FOR $C_x \geqq 0.01\mu F$ USE FORMULA)
  $PW = 0.2 \cdot R_x \cdot C_x \cdot \ell n\,(V_{DD} - GND)$
- (FOR $C_x < 0.01\mu F$ USE DATA BOOK.)

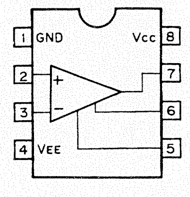
TL064CN (TI)
OPERATIONAL AMPLIFIER
(J FET-INPUT)


1
2
3
4
V+
5
6
7
14
13
12
11
V−
10
9
8

TL082CP (TI)
OPERATIONAL AMPLIFIER
(JEFT-INPUT)
— TOP VIEW —

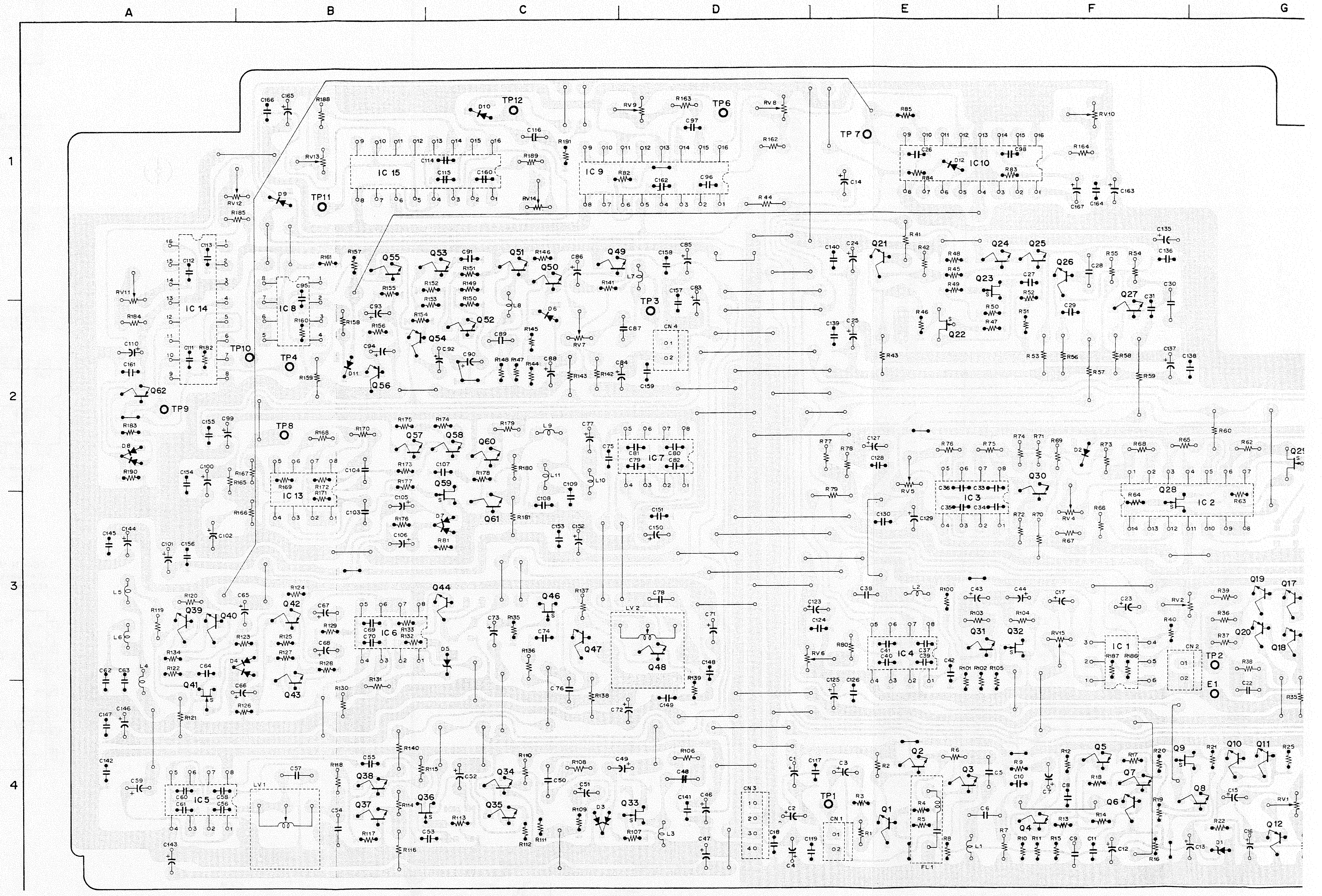

1
2
3
4
V−
V+
8
7
6
5

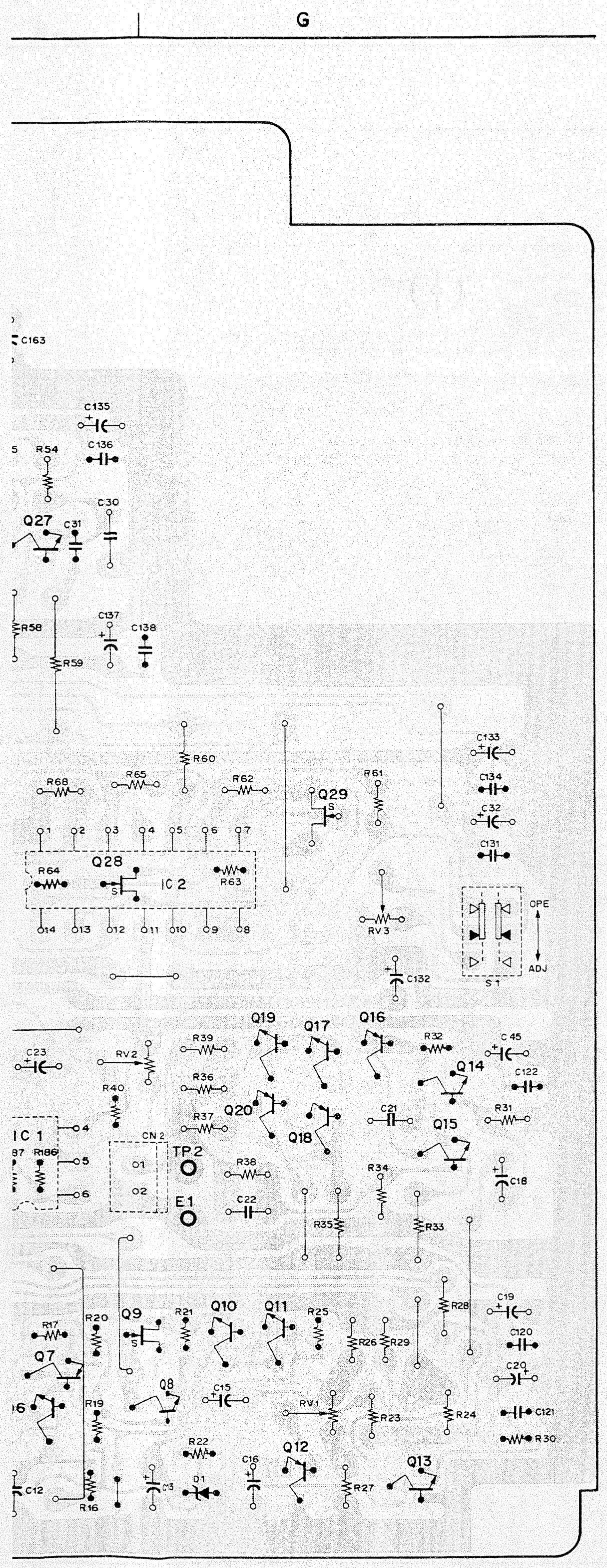
uPC311C (NEC)
VOLTAGE COMPARATOR
— TOP VIEW —


1
GND
2
3
4
VEE
Vcc
8
7
6
5

5-2. PR-45 BOARD RETURN VIDEO AMPLIFIER MOUNTING DIAGRAM

SERIAL NO. 10321 and higher (AEP)
SERIAL NO. 10071 and higher (UK)


A
B
C
D
E
F
G
1
2
3
4
IC 1
IC 2
IC 3
IC 4
IC 5
IC 6
IC 7
IC 8
IC 9
IC 10
IC 13
IC 14
IC 15
TP1
TP2
TP3
TP4
TP6
TP 7
TP8
TP9
TP10
TP11
TP12
E1
CN 1
CN 2
CN 3
CN 4
LV 1
LV 2
FL 1
RV 1
RV 2
RV 4
RV 5
RV 6
RV 7
RV 8
RV 9
RV10
RV11
RV12
RV13
RV14
RV15
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q17
Q18
Q19
Q20
Q21
Q22
Q23
Q24
Q25
Q26
Q27
Q28
Q30
Q31
Q32
Q33
Q34
Q35
Q36
Q37
Q38
Q39
Q40
Q41
Q42
Q43
Q44
Q46
Q47
Q48
Q49
Q50
Q51
Q52
Q53
Q54
Q55
Q56
Q57
Q58
Q59
Q60
Q61
Q62
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
L1
L2
L3
L4
L5
L6
L7
L8
L9
L10
L11


G
C163
C135
C136
R54
C30
Q27
C31
R58
C137
C138
R59
R60
R68
R65
R62
R61
Q29
C133
C134
C32
C131
Q28
R64
IC 2
R63
RV3
S1
OPE
ADJ
C132
Q19
Q17
Q16
R39
R32
C45
C23
RV2
Q14
C122
R36
R40
R37
Q20
C21
Q18
R31
Q15
IC 1
CN 2
TP2
R38
R34
C18
E1
C22
R35
R33
R17
R20
Q9
R21
Q10
Q11
R25
R28
C19
C120
R26
R29
Q7
Q8
C15
C20
R19
RV1
R23
R24
C121
R22
Q12
Q13
R30
C16
C12
R16
C13
D1
R27

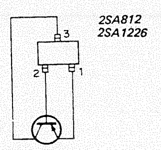
—SOLDERING SIDE—

PR-45 BOARD

1-610-450-12
CCU-M3 (J) 10121~
CCU-M3 (U/C)10451~
CCU-M3P (AEP)10321~
CCU-M3P (UK)10071~

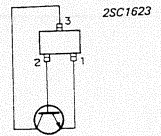
CN1	E - 4
CN2	F - 3
CN3	D - 4
CN4	D - 2
D1	G - 4
D2	F - 2
D3	C - 4
D4	A - 3
D5	B - 3
D6	C - 1
D7	B - 3
D8	A - 2
D9	B - 1
D10	C - 1
D11	B - 2
D12	E - 1
E1	G - 3
FL1	E - 4
IC1	F - 3
IC2	F - 2
IC3	E - 2
IC4	E - 3
IC5	A - 4
IC6	B - 3
IC7	D - 2
IC8	B - 1
IC9	D - 1
IC10	E - 1
IC14	A - 1
IC15	B - 1
LV1	B - 4
LV2	D - 3
Q1	E - 4
Q2	E - 4
Q3	E - 4
Q4	F - 4
Q5	F - 4
Q6	F - 4
Q7	F - 4
Q8	F - 4
Q9	F - 4
Q10	G - 4
Q11	G - 4
Q12	G - 4
Q13	G - 4
Q14	G - 3
Q15	G - 3
Q16	G - 3
Q17	G - 3
Q18	G - 3
Q19	G - 3
Q20	G - 3
Q21	E - 1
Q22	E - 2
Q23	E - 1
Q24	E - 1
Q25	F - 1
Q26	F - 1
Q27	F - 1
Q28	F - 2
Q29	G - 2
Q30	F - 2
Q31	E - 3
Q32	F - 3
Q33	C - 4
Q34	C - 4
Q35	C - 4
Q36	B - 4
Q37	B - 4
Q38	B - 4
Q39	A - 3
Q40	A - 3
Q41	A - 3
Q42	B - 3
Q43	B - 3
Q44	B - 3
Q46	C - 3
Q47	C - 3
Q48	D - 3
Q49	C - 1
Q50	C - 1
Q51	C - 1
Q52	C - 2
Q53	B - 1
Q54	B - 2
Q55	B - 1
Q56	B - 2
Q57	B - 2
Q58	C - 2
Q59	B - 2
Q60	C - 2
Q61	C - 2
Q62	A - 2
RV1	G - 4
RV2	F - 3
RV3	G - 3
RV4	F - 2
RV5	E - 2
RV6	D - 3
RV7	C - 2
RV8	D - 1
RV9	C - 1
RV10	F - 1
RV11	A - 1
RV12	A - 1
RV13	B - 1
RV14	C - 1
RV15	F - 3
S1	G - 3
TP1	D - 4
TP2	G - 3
TP3	D - 1
TP4	B - 2
TP6	D - 1
TP7	E - 1
TP8	B - 2
TP9	A - 2
TP10	A - 2
TP11	B - 1
TP12	C - 1

TOP VIEW (SCALE 4/1)

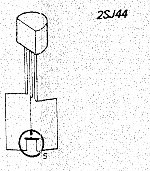


2SA812
2SA1226

TOP VIEW (SCALE 4/1)

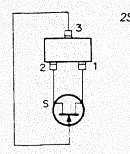


2SC1623



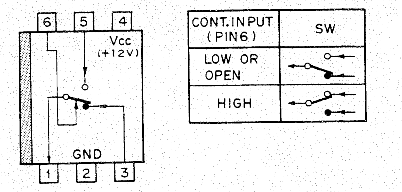
2SJ44

TOP VIEW (SCALE 4/1)

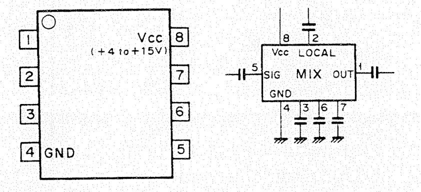


2SK94

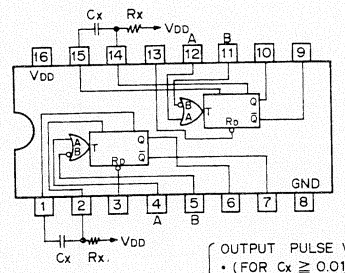
CX130 (SONY)
ANALOG SWITCH
— TOP VIEW —


6
5
4
Vcc
(+12V)
GND
1
2
3
CONT.INPUT (PIN6)
SW
LOW OR OPEN
HIGH

SN16913P (TI)
BALANCED MIXER
— TOP VIEW —


1
2
3
4 GND
Vcc (+4 to +15V)
8
7
6
5
8
2
Vcc
LOCAL
5
SIG
MIX
OUT
1
GND
4
3
6
7

TC4528BP (TOSHIBA)
C-MOS RETRIGGERABLE / RESETTABLE MMV
—TOP VIEW—

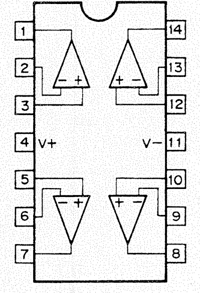

Cx
Rx
VDD
A
B
16
15
14
13
12
11
10
9
VDD
B
A
T
Q
$\overline{Q}$
RD
GND
1
2
3
4
5
6
7
8
A
B
Cx
Rx.
VDD

INPUTS			OUTPUTS	
A	B	RD	Q	$\overline{Q}$
↑	1	1	⊓	⊔
↑	0	1	Q	$\overline{Q}$
1	↓	1	Q	$\overline{Q}$
0	↓	1	⊓	⊔
X	X	0	0	1

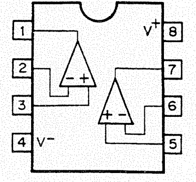
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

OUTPUT PULSE WIDTH Q OR $\overline{Q}$
- (FOR $C_x \geqq 0.01\mu F$ USE FORMULA)
  $PW = 0.2 \cdot R_x \cdot C_x \cdot \ln (V_{DD} - GND)$
- (FOR $C_x < 0.01\mu F$ USE DATA BOOK.)

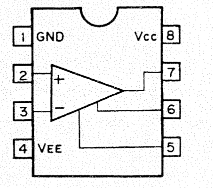
TL064CN (TI)
OPERATIONAL AMPLIFIER
(J FET-INPUT)


1
2
3
4 V+
5
6
7
14
13
12
V− 11
10
9
8

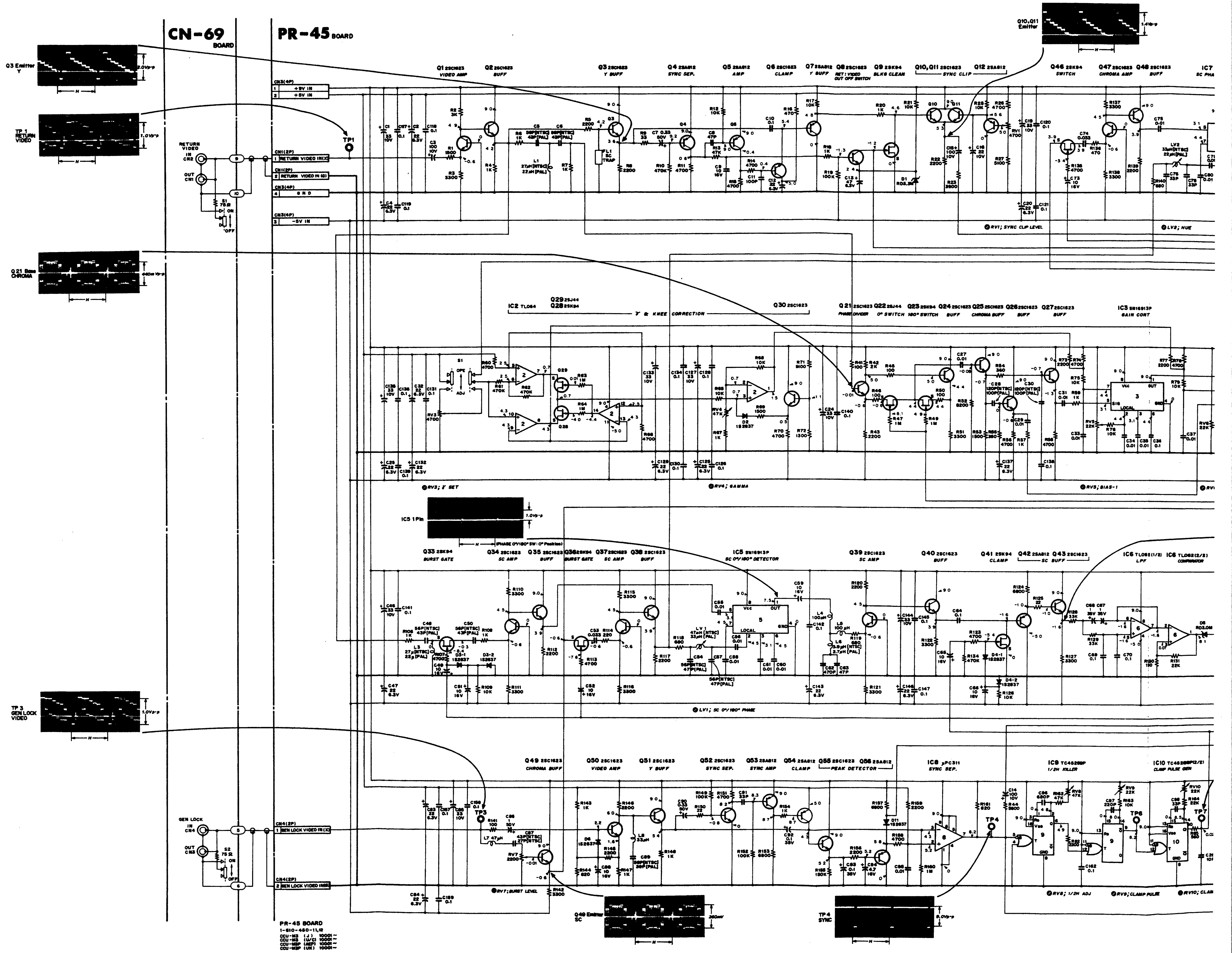
TL082CP (TI)
OPERATIONAL AMPLIFIER
(JEFT-INPUT)
— TOP VIEW —

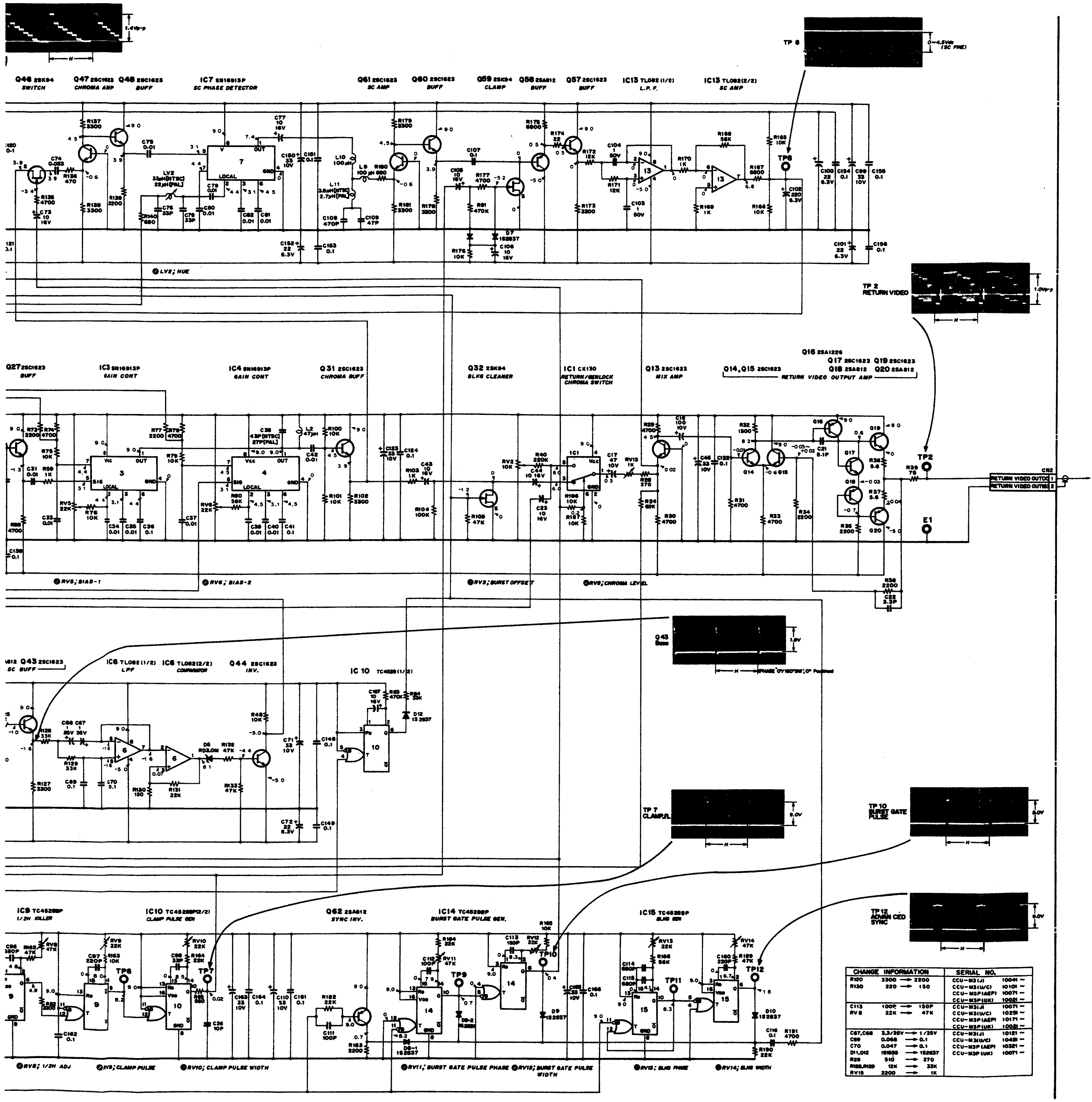

1
2
3
4 V−
V+ 8
7
6
5

uPC311C (NEC)
VOLTAGE COMPARATOR
— TOP VIEW —


1 GND
2
3
4 VEE
Vcc 8
7
6
5

SCHEMATIC DIAGRAM


CN-69 BOARD
PR-45 BOARD
Q3 Emitter Y
2.0Vp-p
H
TP 1 RETURN VIDEO
1.0Vp-p
Q21 Base CHROMA
TP 3 GEN LOCK VIDEO
1.0Vp-p
Q10, Q11 Emitter
IC5 1 Pin
1.0Vp-p
(PHASE 0°/180° SW: 0° Position)
Q49 Emitter SC
TP 4 SYNC
RETURN VIDEO IN CN2
OUT CN1
GEN LOCK IN CN4
OUT CN3
S1 75Ω ON OFF
S2 75Ω ON OFF
TP1
TP3
TP4
TP6
TP7
Q1 2SC1623 VIDEO AMP
Q2 2SC1623 BUFF
Q3 2SC1623 Y BUFF
Q4 2SA812 SYNC SEP.
Q5 2SA812 AMP
Q6 2SC1623 CLAMP
Q7 2SA812 Y BUFF
Q8 2SC1623 RET: VIDEO OUT OFF SWITCH
Q9 2SK94 BLKG CLEAN
Q10, Q11 2SC1623 SYNC CLIP
Q12 2SA812
Q46 2SK94 SWITCH
Q47 2SC1623 CHROMA AMP
Q48 2SC1623 BUFF
IC7 SC PHA
IC2 TL064
Q29 2SJ44
Q28 2SK94
Y & KNEE CORRECTION
Q30 2SC1623
Q21 2SC1623 PHASE DIVIDER
Q22 2SJ44 0° SWITCH
Q23 2SK94 180° SWITCH
Q24 2SC1623 BUFF
Q25 2SC1623 CHROMA BUFF
Q26 2SC1623 BUFF
Q27 2SC1623 BUFF
IC3 SN16913P GAIN CONT
Q33 2SK94 BURST GATE
Q34 2SC1623 SC AMP
Q35 2SC1623 BUFF
Q36 2SK94 BURST GATE
Q37 2SC1623 SC AMP
Q38 2SC1623 BUFF
IC5 SN16913P SC 0°/180° DETECTOR
Q39 2SC1623 SC AMP
Q40 2SC1623 BUFF
Q41 2SK94 CLAMP
Q42 2SA812 Q43 2SC1623 SC BUFF
IC6 TL082(1/2) LPF
IC6 TL082(2/2) COMPARATOR
Q49 2SC1623 CHROMA BUFF
Q50 2SC1623 VIDEO AMP
Q51 2SC1623 Y BUFF
Q52 2SC1623 SYNC SEP.
Q53 2SA812 SYNC AMP
Q54 2SA812 CLAMP
Q55 2SC1623 Q56 2SA812 PEAK DETECTOR
IC8 μPC311 SYNC SEP.
IC9 TC4528BP 1/2H KILLER
IC10 TC4528BP(2/2) CLAMP PULSE GEN
CN3(4P) +9V IN
CN1(2P) RETURN VIDEO IN(X)
CN1(2P) RETURN VIDEO IN (G)
CN3(4P) GND
CN3(4P) -5V IN
CN4(2P) GEN LOCK VIDEO IN (X)
CN4(2P) GEN LOCK VIDEO IN(G)
RV1; SYNC CLIP LEVEL
LV2; HUE
RV3; Y SET
RV4; GAMMA
RV5; BIAS-1
LV1; SC 0°/180° PHASE
RV7; BURST LEVEL
RV8; 1/2H ADJ
RV9; CLAMP PULSE
RV10; CLAM
OPE ADJ
LOCAL
PR-45 BOARD
1-610-450-11, 12
CCU-M3 (J) 10001~
CCU-M3 (U/C) 10001~
CCU-M3P (AEP) 10001~
CCU-M3P (UK) 10001~


1.4Vp-p
H
TP 8
0~4.5Vdc (SC FINE)
Q46 2SK94 SWITCH
Q47 2SC1623 CHROMA AMP
Q48 2SC1623 BUFF
IC7 SN16913P SC PHASE DETECTOR
Q61 2SC1623 SC AMP
Q60 2SC1623 BUFF
Q59 2SK94 CLAMP
Q58 2SA812 BUFF
Q57 2SC1623 BUFF
IC13 TL082(1/2) L.P.F.
IC13 TL082(2/2) SC AMP
TP8
LV2; HUE
TP 2 RETURN VIDEO
1.0Vp-p
Q27 2SC1623 BUFF
IC3 SN16913P GAIN CONT
IC4 SN16913P GAIN CONT
Q31 2SC1623 CHROMA BUFF
Q32 2SK94 BLKG CLEANER
IC1 CX130 RETURN/GENLOCK CHROMA SWITCH
Q13 2SC1623 MIX AMP
Q14,Q15 2SC1623
Q16 2SA1226
Q17 2SC1623 Q19 2SC1623
Q18 2SA812 Q20 2SA812
RETURN VIDEO OUTPUT AMP
TP2
E1
CN2
RETURN VIDEO OUT(X)
RETURN VIDEO OUT(G)
CN14 (14P) CAMERA
RV5; BIAS-1
RV6; BIAS-2
RV2; BURST OFFSET
RV3; CHROMA LEVEL
Q43 Base
Q43 2SC1623 SC BUFF
IC6 TL082(1/2) LPF
IC6 TL082(2/2) COMPARATOR
Q44 2SC1623 INV.
IC 10 TC4528(1/2)
TP 7 CLAMP PULSE
TP 10 BURST GATE PULSE
TP 12 ADVANCED SYNC
9.0V
IC9 TC4528BP 1/2H KILLER
IC10 TC4528BP(2/2) CLAMP PULSE GEN
Q62 2SA812 SYNC INV.
IC14 TC4528BP BURST GATE PULSE GEN.
IC15 TC4528BP BLKG GEN
TP6
TP7
TP9
TP10
TP11
TP12
RV8; 1/2H ADJ
RV9; CLAMP PULSE
RV10; CLAMP PULSE WIDTH
RV11; BURST GATE PULSE PHASE
RV12; BURST GATE PULSE WIDTH
RV13; BLKG PHASE
RV14; BLKG WIDTH

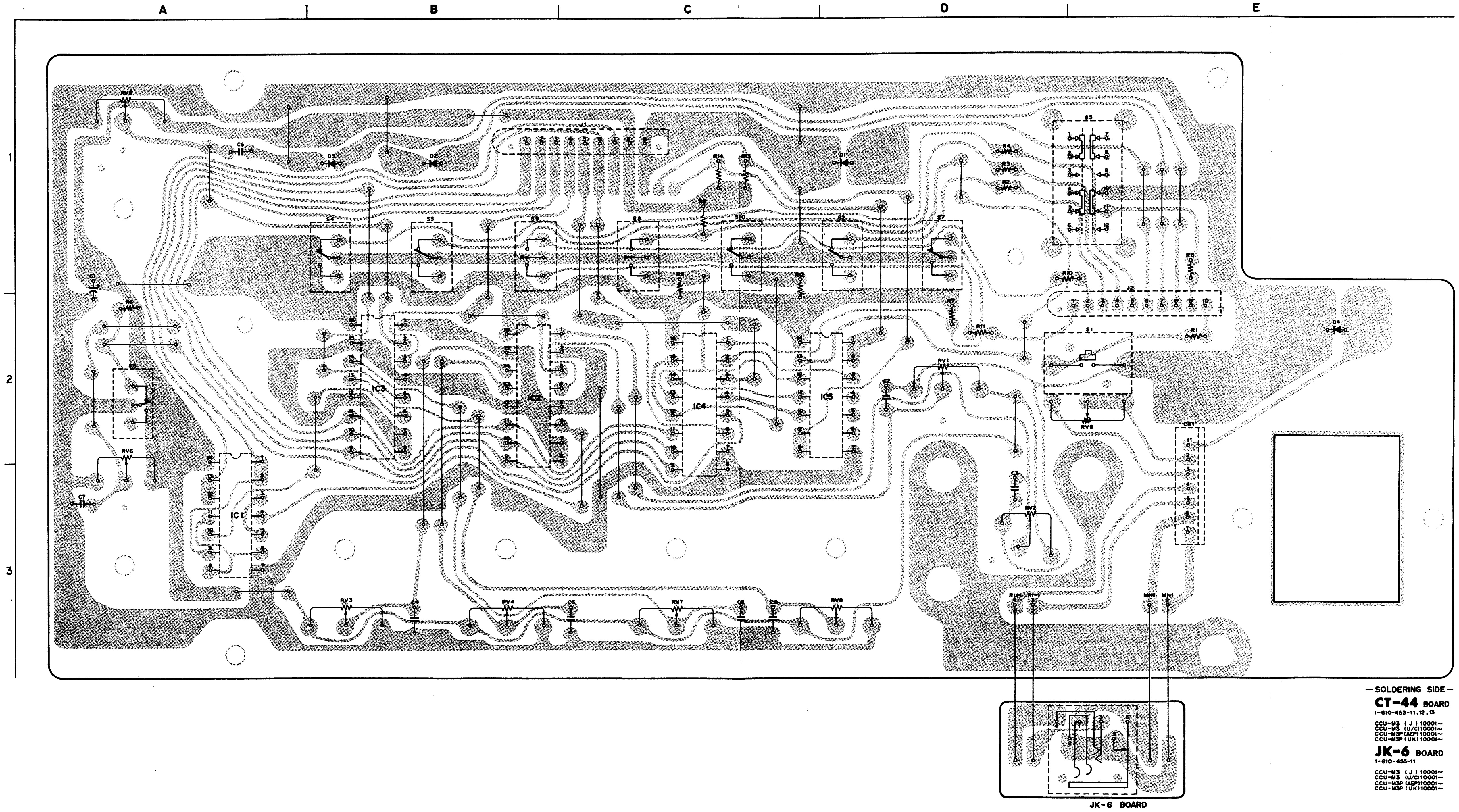
CHANGE INFORMATION	SERIAL NO.
R120 3300 → 2200 R130 220 → 150	CCU-M3(J) 10041 ~ CCU-M3(U/C) 10101 ~ CCU-M3P(AEP) 10071 ~ CCU-M3P(UK) 10021 ~
C113 100P → 150P RV8 22K → 47K	CCU-M3(J) 10071 ~ CCU-M3(U/C) 10251 ~ CCU-M3P(AEP) 10171 ~ CCU-M3P(UK) 10021 ~
C67,C68 3.3/35V → 1/35V C69 0.068 → 0.1 C70 0.047 → 0.1 D11,D12 1S1555 → 1S2837 R28 510 → 270 R128,R129 12K → 33K RV15 2200 → 1K	CCU-M3(J) 10121 ~ CCU-M3(U/C) 10451 ~ CCU-M3P(AEP) 10321 ~ CCU-M3P(UK) 10071 ~

Note:

1. All voltages are dc, measured with a digital volt meter (input resistance 10 MΩ).
2. All waveforms are taken in conditions below.
   - Be sure that CCU-M3P is connected to DXC-M3P by the camera cable "CCQ-25AM".
   - Setting the switches on CCU
     MODE "BARS/CAMERA" SW: BARS
     LOCK SW: OFF
   - Setting the switches on CAMERA
     PRE HEAT SW: ON
     LENS "AUTO/MANU" SW: AUTO
   - Connectors "GEN LOCK IN" and "RETURN VIDEO IN" are suppied with the color bar signal (1Vp-p)

SERIAL N
SERIAL N

5-3. CT-44, IF-35 BOARD CONTROL SYSTEM
JK-6 BOARD INTERCOM JACK
MOUNTING DIAGRAM


A
B
C
D
E
1
2
3
RV5
C6
D3
D2
J1
D1
R14
R13
R4
R3
R2
S5
S4
S3
S9
S8
S10
S2
S7
C1
R6
S6
RV6
C7
IC1
IC3
IC2
IC4
IC5
R5
R10
R11
R1
J2
S1
D4
RV1
C2
RV9
C3
RV2
CN1
RV3
C4
RV4
C5
RV7
C8
C9
RV8
JK-6 BOARD

CN1	E - 3
D1	D - 1
D2	B - 1
D3	B - 1
D4	E - 2
IC1	A - 3
IC2	B - 2
IC3	B - 2
IC4	C - 2
IC5	D - 2
J1	C - 1
J2	E - 2
RV1	D - 2
RV2	D - 3
RV4	B - 3
RV5	A - 1
RV6	A - 3
RV7	C - 3
RV8	D - 3
S1	E - 2
S2	D - 1
S3	B - 1
S4	B - 1
S5	E - 1
S6	A - 2
S7	D - 1
S8	C - 1
S9	B - 1
S10	C - 1

— SOLDERING SIDE —

CT-44 BOARD
1-610-453-11, 12, 13

CCU-M3 (J) 10001~
CCU-M3 (U/C) 10001~
CCU-M3P (AEP) 10001~
CCU-M3P (UK) 10001~

JK-6 BOARD
1-610-455-11

CCU-M3 (J) 10001~
CCU-M3 (U/C) 10001~
CCU-M3P (AEP) 10001~
CCU-M3P (UK) 10001~

SERIAL NO. Up to 10170 (AEP)
SERIAL NO. Up to 10020 (UK)

E - 3

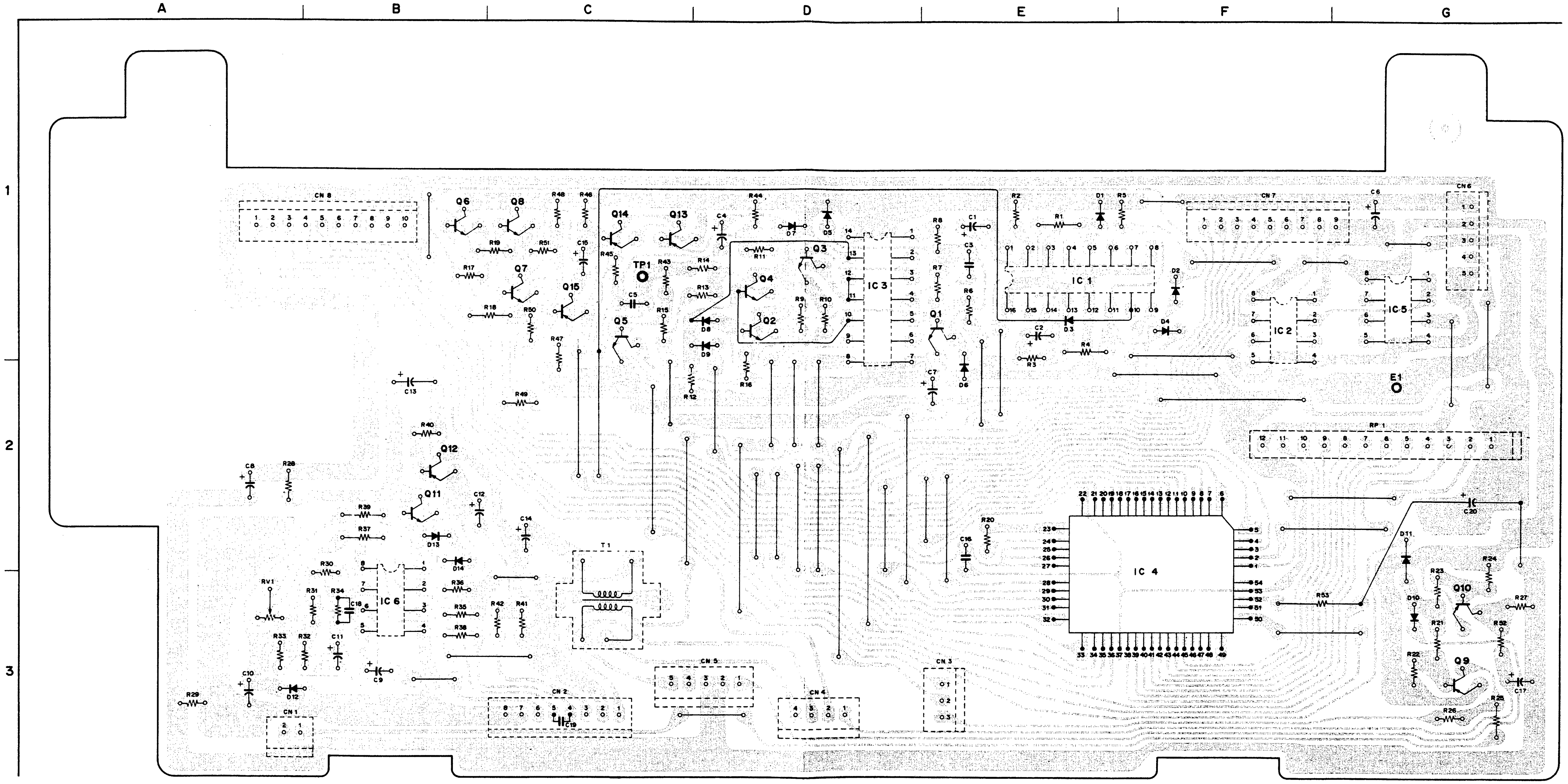
D - 1
B - 1
B - 1
E - 2

A - 3
B - 2
B - 2
C - 2
D - 2

C - 1
E - 2

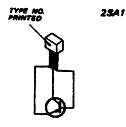
D - 2
D - 3
B - 3
A - 1
A - 3
C - 3
D - 3

E - 2
D - 1
B - 1
B - 1
E - 1
A - 2
D - 1
C - 1
B - 1
C - 1

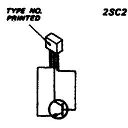

A
B
C
D
E
F
G
1
2
3
CN 1
CN 2
CN 3
CN 4
CN 5
CN 6
CN 7
CN 8
IC 1
IC 2
IC 3
IC 4
IC 5
IC 6
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
Q15
TP1
E1
RP 1
RV1
T 1

—SOLDERING SIDE—
IF-35 BOARD
1-610-452-11
CCU-M3(J) 10001 ~ 10070
CCU-M3(U/C) 10001 ~ 10250
CCU-M3P(AEP) 10001 ~ 10170
CCU-M3P(UK) 10001 ~ 10020

CN1	A - 3
CN2	C - 3
CN3	E - 3
CN4	D - 3
CN5	D - 3
CN6	G - 1
CN7	F - 1
CN8	B - 1
D1	E - 1
D2	F - 1
D3	E - 1
D4	F - 1
D5	D - 1
D6	E - 2
D7	D - 1
D8	D - 1
D9	D - 1
D10	G - 3
D11	G - 2
D12	A - 3
D13	B - 2
D14	B - 2
E	G - 2
IC1	E - 1
IC2	F - 1
IC3	D - 1
IC4	F - 3
IC5	G - 1
IC6	B - 3
Q1	E - 1
Q2	D - 1
Q3	D - 1
Q4	D - 1
Q5	C - 1
Q6	B - 1
Q7	C - 1
Q8	C - 1
Q9	G - 3
Q10	G - 3
Q11	B - 2
Q12	B - 2
Q13	C - 1
Q14	C - 1
Q15	C - 1
RP1	G - 2
RV1	A - 3
TP1	C - 1

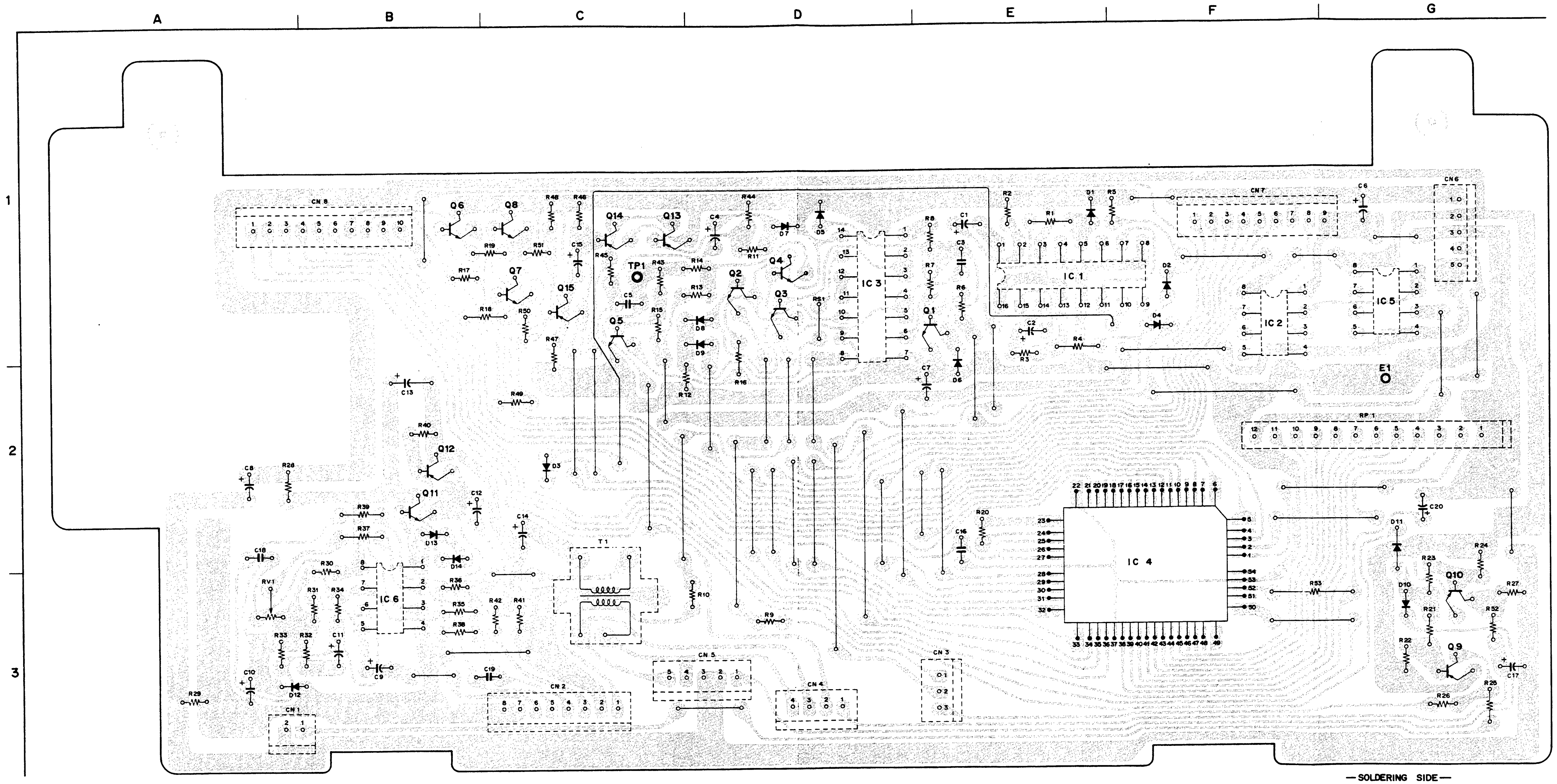

TYPE NO. PRINTED

2SA1175


TYPE NO. PRINTED

2SC2785

SERIAL NO. 10171 and higher (AEP)
SERIAL NO. 10021 and higher (UK)


A
B
C
D
E
F
G
1
2
3
CN 1
CN 2
CN 3
CN 4
CN 5
CN 6
CN 7
CN 8
IC 1
IC 2
IC 3
IC 4
IC 5
IC 6
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
Q15
TP1
E1
RP 1
RV1
T 1

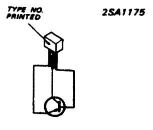
— SOLDERING SIDE —

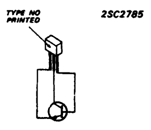
IF-35 BOARD

1-610-452-12

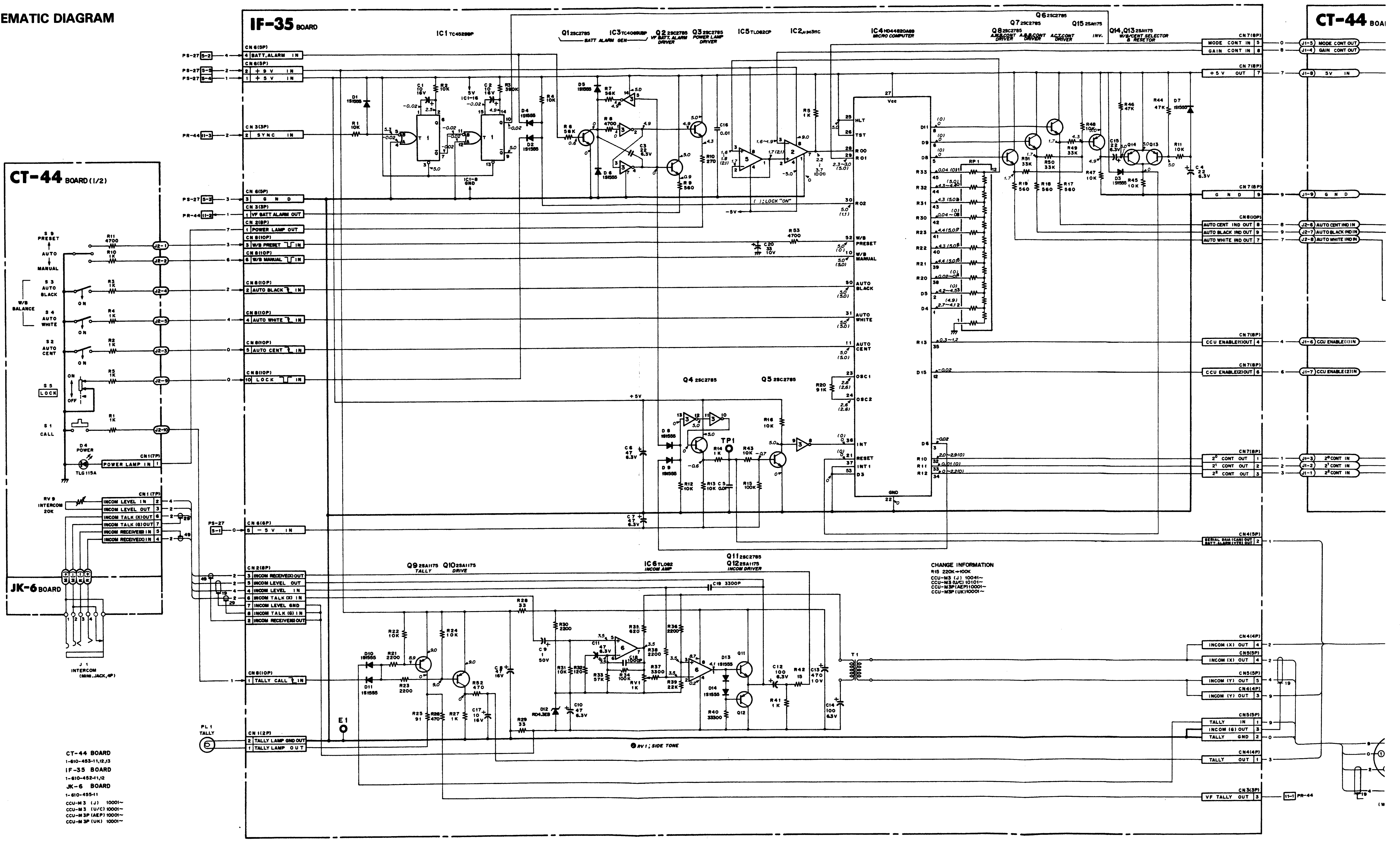
CCU-M3 (J)	10071 ~
CCU-M3 (U/C)	10251 ~
CCU-M3P (AEP)	10171 ~
CCU-M3P (UK)	10021 ~

CN1	A - 3
CN2	C - 3
CN3	E - 3
CN4	D - 3
CN5	D - 3
CN6	G - 1
CN7	F - 1
CN8	B - 1
D1	E - 1
D2	F - 1
D3	C - 2
D4	F - 1
D5	D - 1
D6	E - 2
D7	D - 1
D8	D - 1
D9	D - 1
D10	G - 3
D11	G - 2
D12	A - 3
D13	B - 2
D14	B - 2
E1	G - 2
IC1	E - 1
IC2	F - 1
IC3	D - 1
IC4	F - 3
IC5	G - 1
IC6	B - 3
Q1	E - 1
Q2	D - 1
Q3	D - 1
Q4	D - 1
Q5	C - 1
Q6	B - 1
Q7	C - 1
Q8	C - 1
Q9	G - 3
Q10	G - 3
Q11	B - 2
Q12	B - 2
Q13	C - 1
Q14	C - 1
Q15	C - 1
RP1	G - 2
RV1	A - 3
TP1	C - 1


TYPE NO. PRINTED
2SA1175

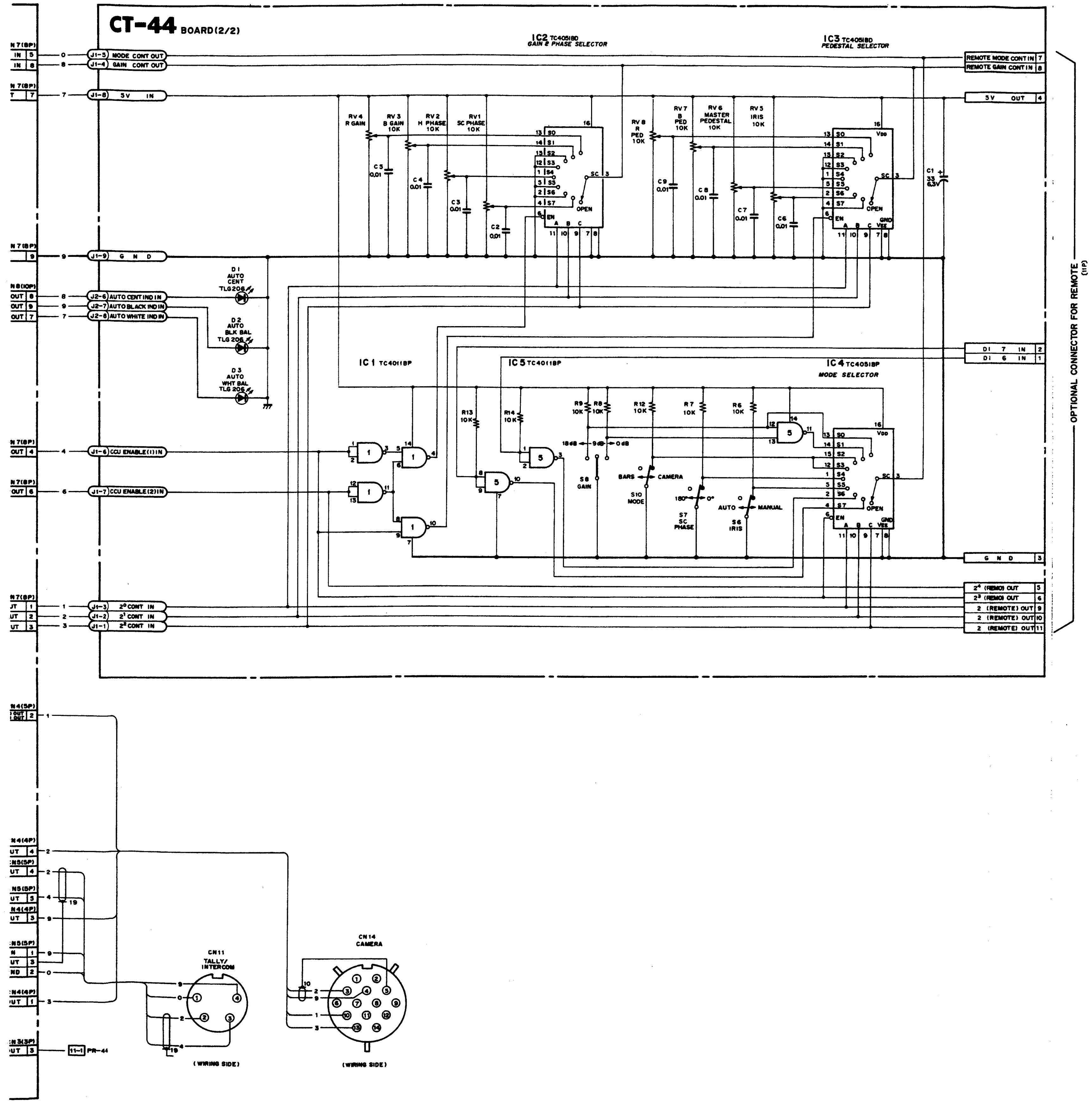

TYPE NO PRINTED
2SC2785

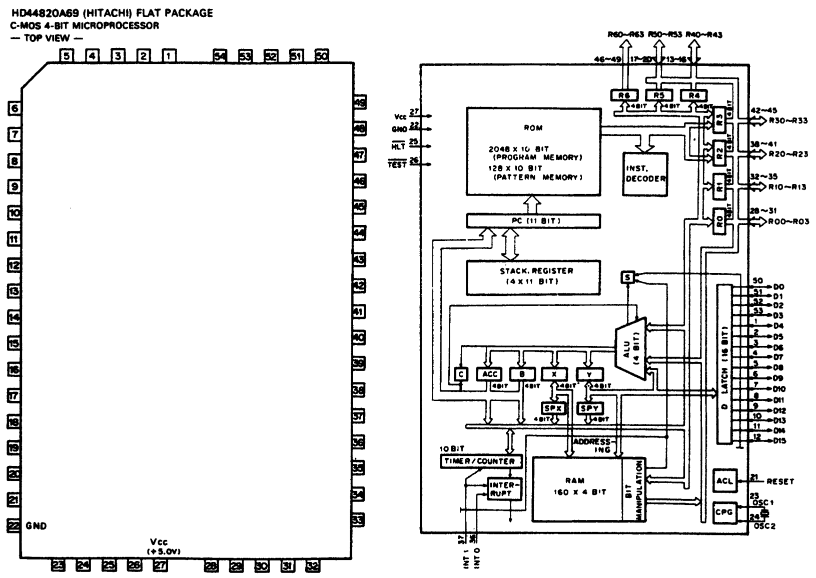
SCHEMATIC DIAGRAM

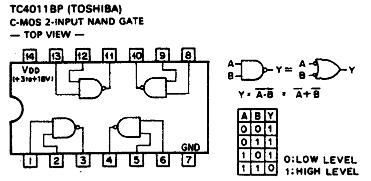

IF-35 BOARD
CT-44 BOARD (1/2)
JK-6 BOARD
CT-44 BOARD
IC1 TC4528BP
Q1 2SC2785 BATT ALARM GEN
IC3 TC4069UBP
Q2 2SC2785 VF BATT ALARM DRIVER
Q3 2SC2785 POWER LAMP DRIVER
IC5 TL062CP
IC2 μpc311C
IC4 HD44820A69 MICRO COMPUTER
Q6 2SC2785
Q7 2SC2785
Q8 2SC2785
Q15 2SA1175
Q14, Q13 2SA1175 W/B/CENT SELECTOR & RESETOR
Q4 2SC2785
Q5 2SC2785
Q9 2SA1175 TALLY
Q10 2SA1175 DRIVE
IC6 TL062 INCOM AMP
Q11 2SC2785
Q12 2SA1175 INCOM DRIVER
S9 PRESET
AUTO
MANUAL
S3 AUTO BLACK
W/B BALANCE
S4 AUTO WHITE
S2 AUTO CENT
S5 LOCK
S1 CALL
D4 POWER TLG115A
RV9 INTERCOM 20K
J1 INTERCOM (MINI JACK, 4P)
PL1 TALLY
E1
TP1
T1
RV1; SIDE TONE
BATT. ALARM IN
+9V IN
+5V IN
SYNC IN
GND
VF BATT ALARM OUT
POWER LAMP OUT
W/B PRESET IN
W/B MANUAL IN
AUTO BLACK IN
AUTO WHITE IN
AUTO CENT IN
LOCK IN
-5V IN
INCOM RECEIVED(X) OUT
INCOM LEVEL OUT
INCOM LEVEL IN
INCOM TALK (X) IN
INCOM LEVEL GND
INCOM TALK (G) IN
INCOM RECEIVED(G) OUT
TALLY CALL IN
TALLY LAMP GND OUT
TALLY LAMP OUT
MODE CONT IN
GAIN CONT IN
+5V OUT
AUTO CENT IND OUT
AUTO BLACK IND OUT
AUTO WHITE IND OUT
CCU ENABLE(1) OUT
CCU ENABLE(2) OUT
2^0 CONT OUT
2^1 CONT OUT
2^2 CONT OUT
SERIAL DATA (CAM) OUT / BATT. ALARM (VTR) OUT
INCOM (X) OUT
INCOM (Y) OUT
TALLY IN
INCOM (G) OUT
TALLY GND
TALLY OUT
VF TALLY OUT

CT-44 BOARD
1-610-453-11,12,13
IF-35 BOARD
1-610-452-11,12
JK-6 BOARD
1-610-455-11
CCU-M3 (J) 10001~
CCU-M3 (U/C) 10001~
CCU-M3P (AEP) 10001~
CCU-M3P (UK) 10001~

CHANGE INFORMATION
R15 220K→100K
CCU-M3 (J) 10041~
CCU-M3 (U/C) 10101~
CCU-M3P (AEP) 10001~
CCU-M3P (UK) 10001~

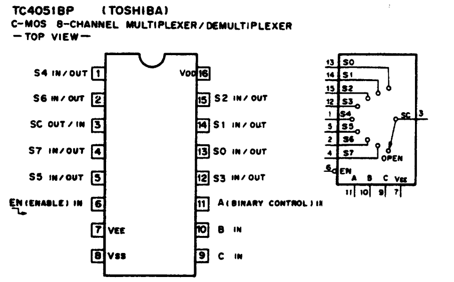

CT-44 BOARD(2/2)
IC2 TC4051BD GAIN & PHASE SELECTOR
IC3 TC4051BD PEDESTAL SELECTOR
IC1 TC4011BP
IC5 TC4011BP
IC4 TC4051BP MODE SELECTOR
J1-5 MODE CONT OUT
J1-4 GAIN CONT OUT
J1-8 5V IN
J1-9 GND
J2-6 AUTO CENT IND IN
J2-7 AUTO BLACK IND IN
J2-8 AUTO WHITE IND IN
J1-6 CCU ENABLE(1)IN
J1-7 CCU ENABLE(2)IN
J1-3 2⁰ CONT IN
J1-2 2¹ CONT IN
J1-1 2² CONT IN
RV4 R GAIN
RV3 B GAIN 10K
RV2 H PHASE 10K
RV1 SC PHASE 10K
RV8 R PED 10K
RV7 B PED 10K
RV6 MASTER PEDESTAL 10K
RV5 IRIS 10K
D1 AUTO CENT TLG208
D2 AUTO BLK BAL TLG208
D3 AUTO WHT BAL TLG208
C1 33 6.3V
S8 GAIN
S10 MODE
S7 SC PHASE
S6 IRIS
BARS CAMERA
AUTO MANUAL
18dB 9dB 0dB
REMOTE MODE CONT IN 7
REMOTE GAIN CONT IN 8
5V OUT 4
DI 7 IN 2
DI 6 IN 1
GND 3
2⁴ (REMO) OUT 5
2³ (REMO) OUT 6
2 (REMOTE) OUT 9
2 (REMOTE) OUT 10
2 (REMOTE) OUT 11
OPTIONAL CONNECTOR FOR REMOTE (11P)
CN11 TALLY/INTERCOM
CN14 CAMERA
(WIRING SIDE)
(WIRING SIDE)
11-1 PR-44


HD44820A69 (HITACHI) FLAT PACKAGE
C-MOS 4-BIT MICROPROCESSOR
— TOP VIEW —
Vcc (+5.0V)
GND
ROM 2048 X 10 BIT (PROGRAM MEMORY) 128 X 10 BIT (PATTERN MEMORY)
INST. DECODER
PC (11 BIT)
STACK REGISTER (4 X 11 BIT)
ALU (4 BIT)
ACC
RAM 160 X 4 BIT
TIMER/COUNTER
INTER-RUPT
ADDRESSING
BIT MANIPULATION
LATCH (16 BIT)
ACL
CPG
RESET
OSC1
OSC2
INT 1
INT 0
R30~R33
R20~R23
R10~R13
R00~R03
D0–D15


TC4011BP (TOSHIBA)
C-MOS 2-INPUT NAND GATE
— TOP VIEW —
VDD (+3to+18V)
GND
Y = $\overline{A \cdot B}$ = $\overline{A}+\overline{B}$

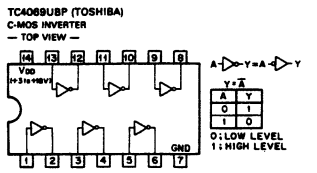
A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0:LOW LEVEL
1:HIGH LEVEL


TC4051BP (TOSHIBA)
C-MOS 8-CHANNEL MULTIPLEXER/DEMULTIPLEXER
— TOP VIEW —
S4 IN/OUT 1
S6 IN/OUT 2
SC OUT/IN 3
S7 IN/OUT 4
S5 IN/OUT 5
EN(ENABLE) IN 6
7 VEE
8 VSS
16 VDD
15 S2 IN/OUT
14 S1 IN/OUT
13 S0 IN/OUT
12 S3 IN/OUT
11 A(BINARY CONTROL) IN
10 B IN
9 C IN
OPEN

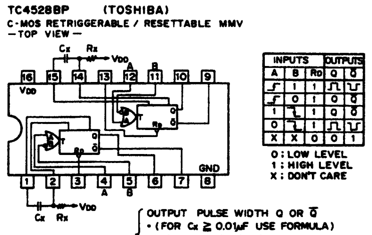
EN	C	B	A	"ON" CHANNEL
0	0	0	0	0
0	0	0	1	1
0	0	1	0	2
0	0	1	1	3
0	1	0	0	4
0	1	0	1	5
0	1	1	0	6
0	1	1	1	7
1	X	X	X	OPEN

0: LOW LEVEL
1: HIGH LEVEL
X: DON'T CARE


TC4069UBP (TOSHIBA)
C-MOS INVERTER
— TOP VIEW —
VDD (+3to+18V)
GND
Y = $\overline{A}$

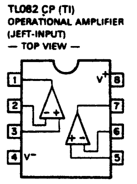
A	Y
0	1
1	0

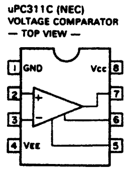
0: LOW LEVEL
1: HIGH LEVEL


TC4528BP (TOSHIBA)
C-MOS RETRIGGERABLE / RESETTABLE MMV
— TOP VIEW —
Cx
Rx
VDD
GND
INPUTS
OUTPUTS
A B RD Q Q̄

0: LOW LEVEL
1: HIGH LEVEL
X: DON'T CARE

OUTPUT PULSE WIDTH Q OR $\overline{Q}$
- (FOR Cx ≧ 0.01μF USE FORMULA)
  PW = 0.2 · Rx · Cx · ℓn (VDD − GND)
- (FOR Cx < 0.01μF USE DATA BOOK)


TL082 CP (TI)
OPERATIONAL AMPLIFIER
(JEFT-INPUT)
— TOP VIEW —

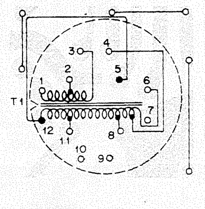

uPC311C (NEC)
VOLTAGE COMPARATOR
— TOP VIEW —

Note:

1. All voltages are dc, measured with a digital voltmeter (input resistance 10 MΩ).

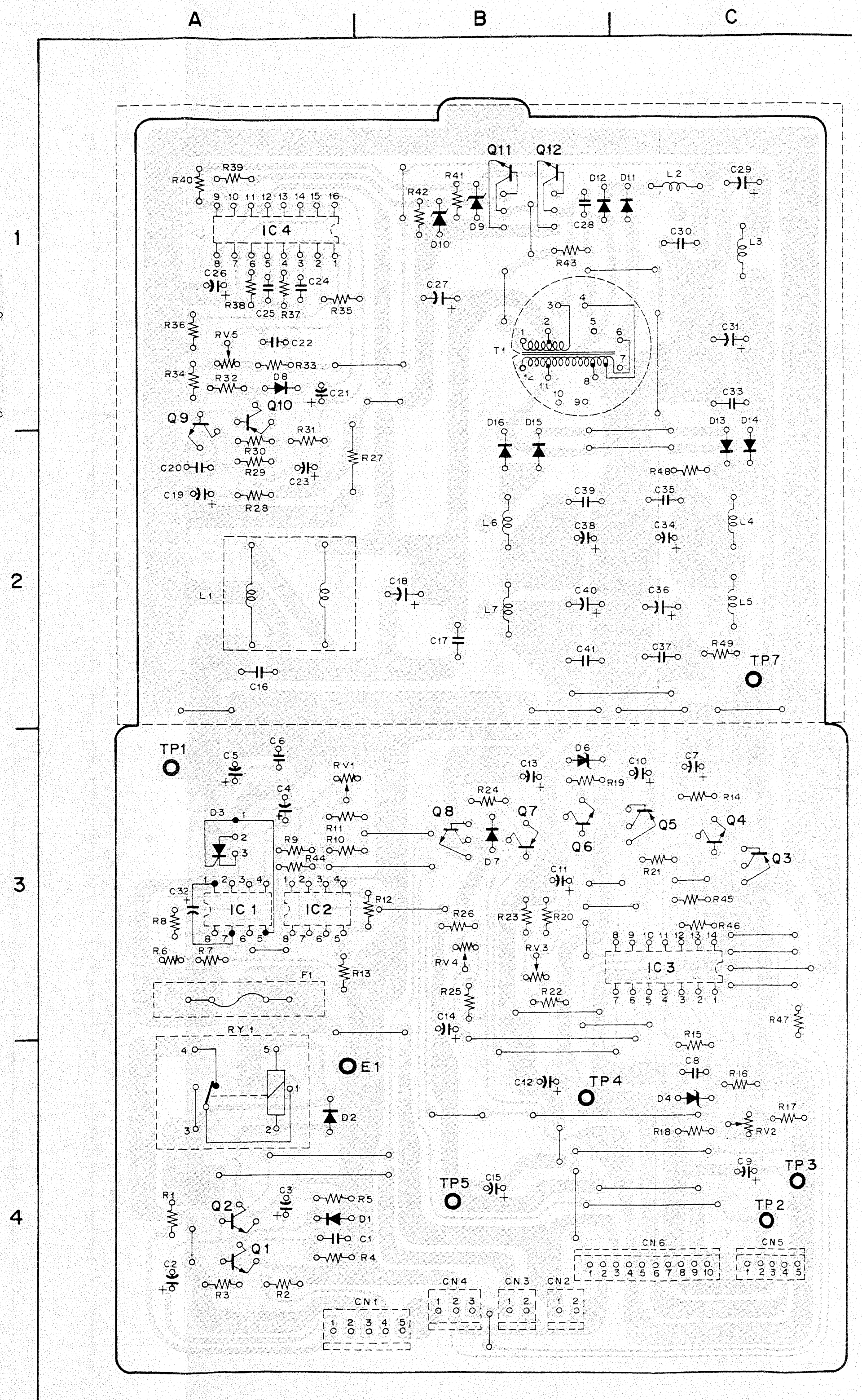
SERIAL NO. Up to 10370 (AEP)
SERIAL NO. Up to 10070 (UK)

5-4. PS-27 BOARD POWER SUPPLY SYSTEM MOUNTING DIAGRAM


T1
1
2
3
4
5
6
7
8
9
10
11
12

1-610-451-11

CCU-M3(J)	10001 ~ 10040
CCU-M3(U/C)	10001 ~ 10100
CCU-M3P(AEP)	10001 ~ 10070
CCU-M3P(UK)	10001 ~ 10020


A
B
C
1
2
3
4
Q11
Q12
R39
R40
IC4
R41
R42
D9
D10
D12
D11
L2
C29
C28
C30
L3
R43
C26
C24
R38
C25
R37
R35
C27
R36
RV5
C22
T1
C31
R34
R32
D8
R33
C21
C33
Q9
Q10
R31
D16
D15
D13
D14
R30
R27
C20
R29
C23
R48
C19
R28
C39
C35
L6
C38
C34
L4
L1
C18
C40
C36
L7
L5
C17
C41
C37
R49
TP7
C16
TP1
C5
C6
RV1
D6
C13
C10
C7
R19
R14
C4
R24
Q8
Q7
Q5
Q4
D3
R11
R10
Q6
Q2
Q3
R9
R44
D7
Q3
C11
R21
C32
IC1
IC2
R12
R45
R8
R26
R23
R20
R46
R6
R7
RV3
RV4
IC3
F1
R13
R25
R22
C14
R47
RY1
R15
C8
E1
R16
C12
TP4
D4
D2
R17
R18
RV2
TP5
C15
C9
TP3
R1
Q2
C3
R5
D1
TP2
Q1
C1
CN6
CN5
R4
C2
R3
R2
CN4
CN3
CN2
CN1

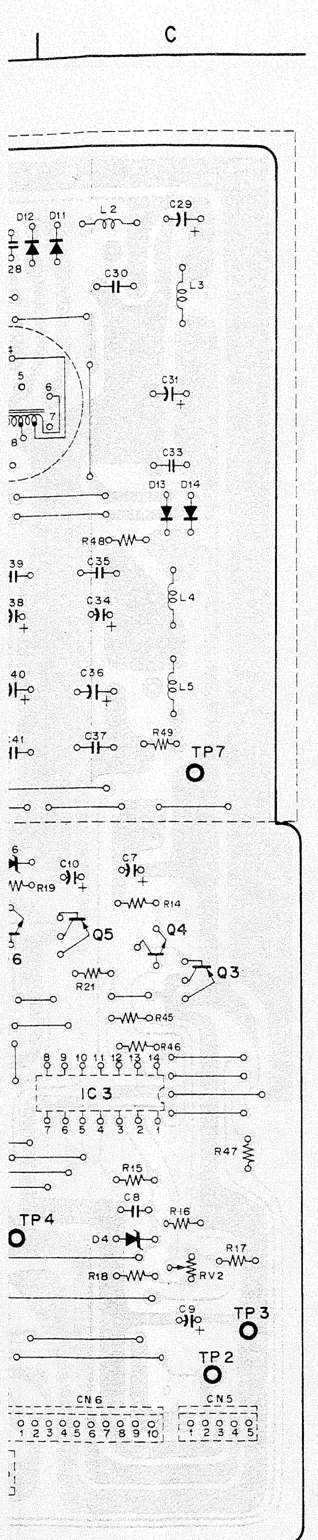
— SOLDERING SIDE —

PS-27 BOARD

1-610-451-12

CCU-M3(J)	10041 ~ 10120
CCU-M3(U/C)	10101 ~ 10650
CCU-M3P(AEP)	10071 ~ 10370
CCU-M3P(UK)	10021 ~ 10070

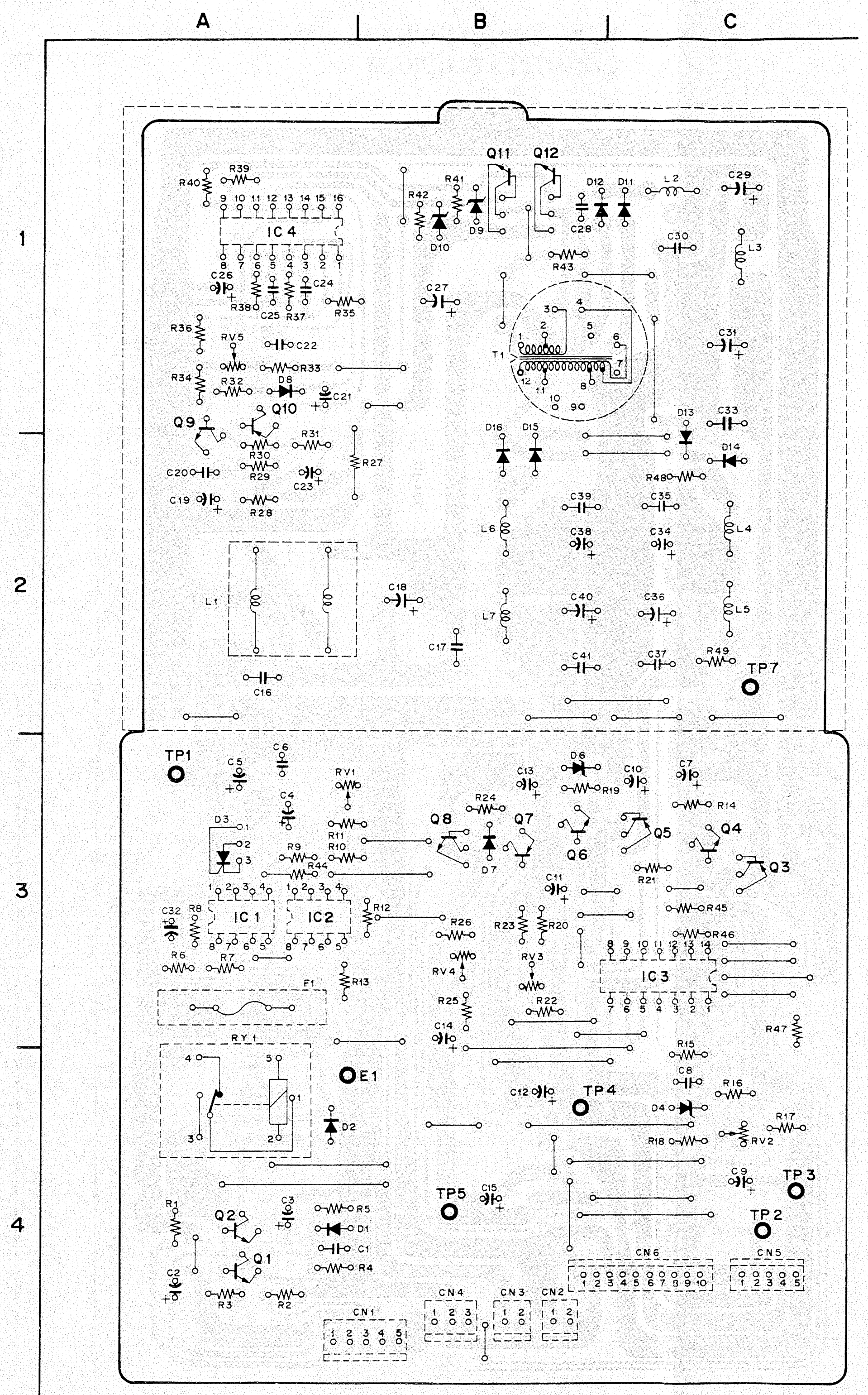
SERIAL NO. 10371 and higher (AEP)
SERIAL NO. 10071 and higher (UK)


C
D12 D11 L2 C29
C30 L3
C31
C33
D13 D14
R48 C35
C34 L4
C36 L5
C37 R49 TP7
C10 C7
R19 R14
Q5 Q4
Q3
R21
R45
R46
IC 3
R47
R15
C8 R16
TP4
D4 R17
R18 RV2
C9 TP3
TP2
CN6 CN5

RING SIDE —
BOARD
2

10041 ~ 10120
10101 ~ 10650
10071 ~ 10370
10021 ~ 10070

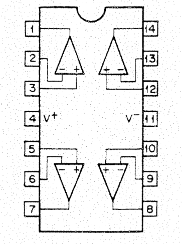
CN1	B - 4
CN2	B - 4
CN3	B - 4
CN4	B - 4
CN5	C - 4
CN6	C - 4
D1	A - 4
D2	A - 4
D3	A - 3
D4	C - 4
D6	B - 3
D7	B - 3
D8	A - 1
D9	B - 1
D10	B - 1
D11	C - 1
D12	B - 1
D13	C - 2
D14	C - 2
D15	B - 2
D16	B - 2
E1	A - 4
F1	A - 3
IC1	A - 3
IC2	A - 3
IC3	C - 3
IC4	A - 1
Q1	A - 4
Q2	A - 4
Q3	C - 3
Q4	C - 3
Q5	C - 3
Q6	B - 3
Q7	B - 3
Q8	B - 3
Q9	A - 2
Q10	A - 1
Q11	B - 1
Q12	B - 1
RV1	A - 3
RV2	C - 4
RV3	B - 3
RV4	B - 3
RV5	A - 1
RY1	A - 4
T1	B - 1
TP1	A - 3
TP2	C - 4
TP3	C - 4
TP4	B - 4
TP5	B - 4
TP7	C - 2


A
B
C
1
2
3
4
R39 R40
IC 4
C26 C24
R38 C25 R37 R35
R36
RV5 C22
R33
R34 R32 D8 C21
Q9 Q10
R31
R30 R27
C20 R29 C23
C19 R28
L1
C18
C17
C16
Q11 Q12
R42 R41 D12 D11 L2 C29
D10 D9 C28
C30 L3
R43
C27
T1
C31
D16 D15 D13 C33
D14
R48
C39 C35
L6 C38 C34 L4
L7 C40 C36 L5
C41 C37 R49 TP7
TP1 C5 C6
RV1
C4
D3
R11
R10
R9
R44
Q8 Q7 Q6
D7
D6 C10 C7
R24 R19 R14
C13
Q5 Q4
Q3
C11
R21
R12
IC 1 IC 2
C32 R8
R6 R7
R26
R23 R20
RV3
RV4
R45
R46
IC3
F1
R13
R25
R22
R47
C14
RY1
E1
R15
C8 R16
C12 TP4
D4
D2
R17
R18 RV2
TP5 C15
C9 TP3
R1
Q2 C3 R5
D1
C1
C2 Q1 R4
R3 R2
TP2
CN6 CN5
CN1 CN4 CN3 CN2

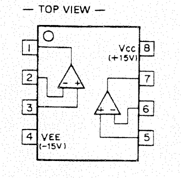
— SOLDERING SIDE —
PS-27 BOARD
1-610-451-13
CCU-M3(J) 10121 ~
CCU-M3(U/C) 10651 ~
CCU-M3P(AEP) 10371 ~
CCU-M3P(UK) 10071 ~

CN1	B 4
CN2	B - 4
CN3	B - 4
CN4	B - 4
CN5	C - 4
CN6	C - 4
D1	A - 4
D2	A - 4
D3	A - 3
D4	C - 4
D6	B - 3
D7	B - 3
D8	A - 1
D9	B - 1
D10	B - 1
D11	C - 1
D12	B - 1
D13	C - 2
D14	C - 2
D15	B - 2
D16	B - 2
E1	A - 4
F1	A - 3
IC1	A - 3
IC2	A - 3
IC3	C - 3
IC4	A - 1
Q1	A - 4
Q2	A - 4
Q3	C - 3
Q4	C - 3
Q5	C - 3
Q6	B - 3
Q7	B - 3
Q8	B - 3
Q9	A - 2
Q10	A - 1
Q11	B - 1
Q12	B - 1
RV1	A - 3
RV2	C - 4
RV3	B - 3
RV4	B - 3
RV5	A - 1
RY1	A - 4
T1	B - 1
TP1	A - 3
TP2	C - 4
TP3	C - 4
TP4	B - 4
TP5	B - 4
TP7	C - 2

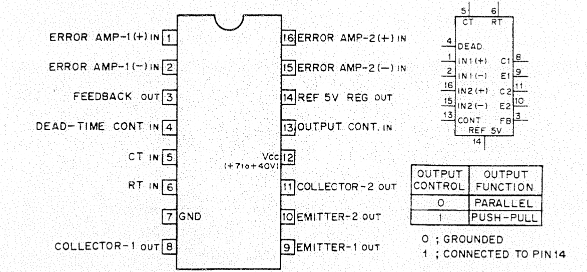
TL084CN (TI)
OPERATIONAL AMPLIFIER
(JFET - INPUT)
— TOP VIEW —


1
2
3
4 V+
5
6
7
14
13
12
V− 11
10
9
8

NJM2903D (JRC)
OPERATIONAL AMPLIFIER
— TOP VIEW —

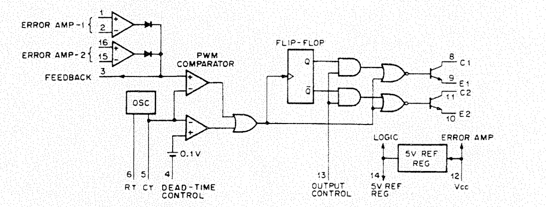

1
2
3
4 VEE (−15V)
Vcc (+15V) 8
7
6
5

TL494CN (TI)
PWM POWER CONTROL
— TOP VIEW —

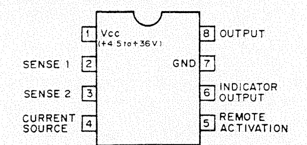

ERROR AMP−1(+) IN 1
ERROR AMP−1(−) IN 2
FEEDBACK OUT 3
DEAD−TIME CONT IN 4
CT IN 5
RT IN 6
7 GND
COLLECTOR−1 OUT 8
16 ERROR AMP−2(+) IN
15 ERROR AMP−2(−) IN
14 REF 5V REG OUT
13 OUTPUT CONT. IN
Vcc (+7to+40V) 12
11 COLLECTOR−2 OUT
10 EMITTER−2 OUT
9 EMITTER−1 OUT
5 CT
6 RT
4 DEAD
1 IN1(+)
2 IN1(−)
16 IN2(+)
15 IN2(−)
13 CONT
C1 8
E1 9
C2 11
E2 10
FB 3
REF 5V
14

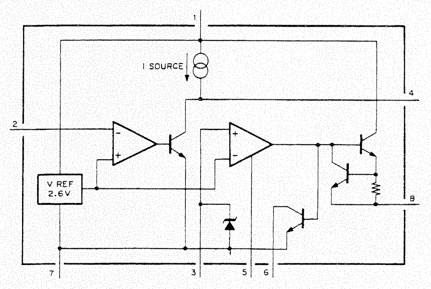
OUTPUT CONTROL	OUTPUT FUNCTION
0	PARALLEL
1	PUSH-PULL

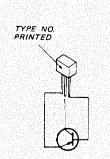
0 ; GROUNDED
1 ; CONNECTED TO PIN14


ERROR AMP−1
1
2
ERROR AMP−2
16
15
FEEDBACK
3
PWM COMPARATOR
OSC
0.1V
FLIP-FLOP
Q
Q̄
8 C1
9 E1
11 C2
10 E2
LOGIC
ERROR AMP
5V REF REG
6 RT
5 CT
4 DEAD-TIME CONTROL
13 OUTPUT CONTROL
14 5V REF REG
12 Vcc

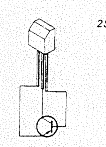
uPC3423C (NEC)
OVERVOLTAGE CROWBAR SENSING CIRCUIT
— TOP VIEW —


1 Vcc (+4.5 to +36V)
SENSE 1 2
SENSE 2 3
CURRENT SOURCE 4
8 OUTPUT
GND 7
6 INDICATOR OUTPUT
5 REMOTE ACTIVATION

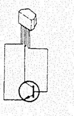

1
I SOURCE
4
2
V REF 2.6V
8
7
3
5
6


TYPE NO. PRINTED

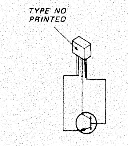
2SA1175



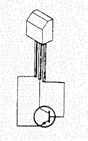
2SB733



2SC2603

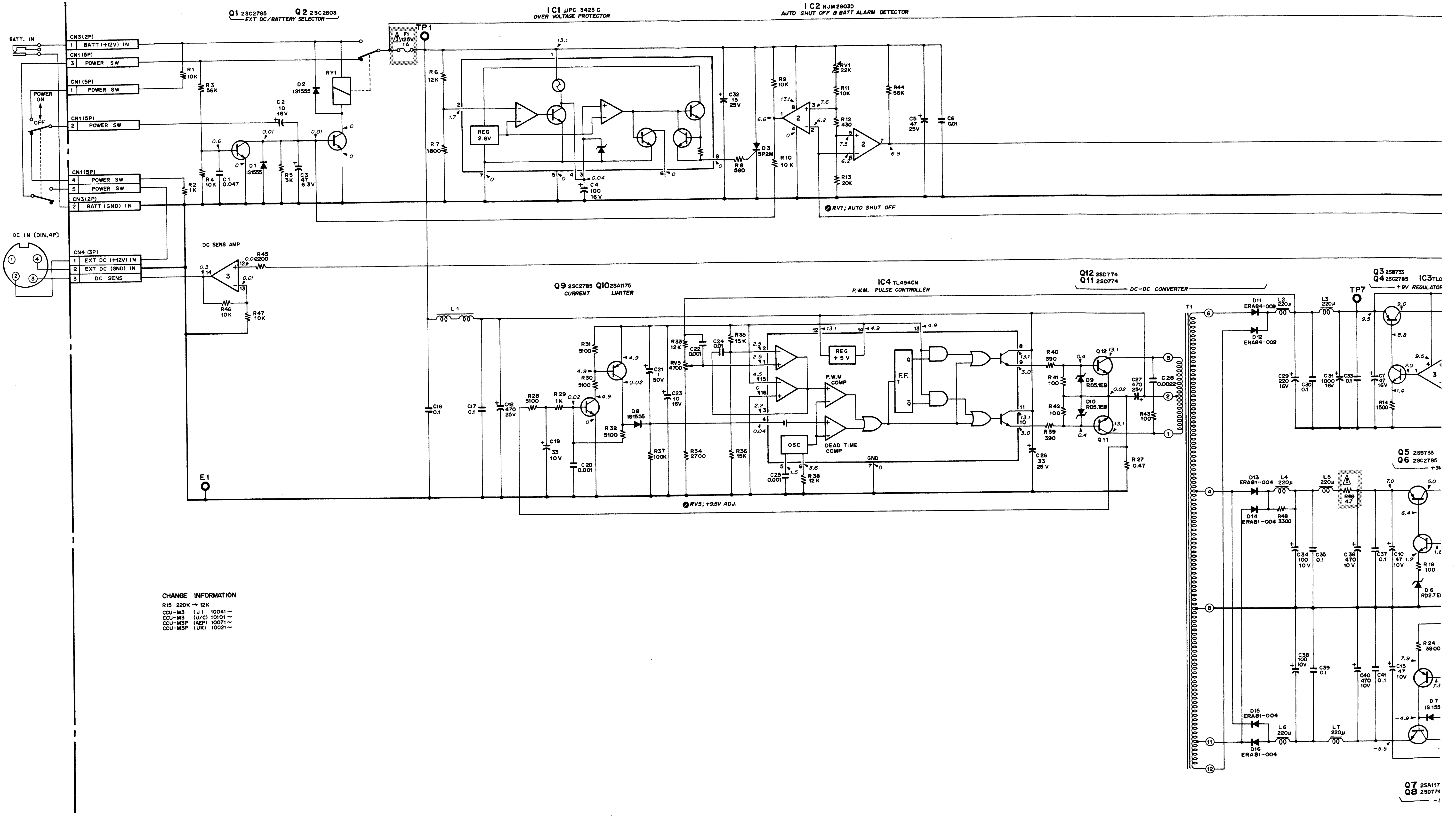

TYPE NO PRINTED

2SC2785



2SD774

SCHEMATIC DIAGRAM

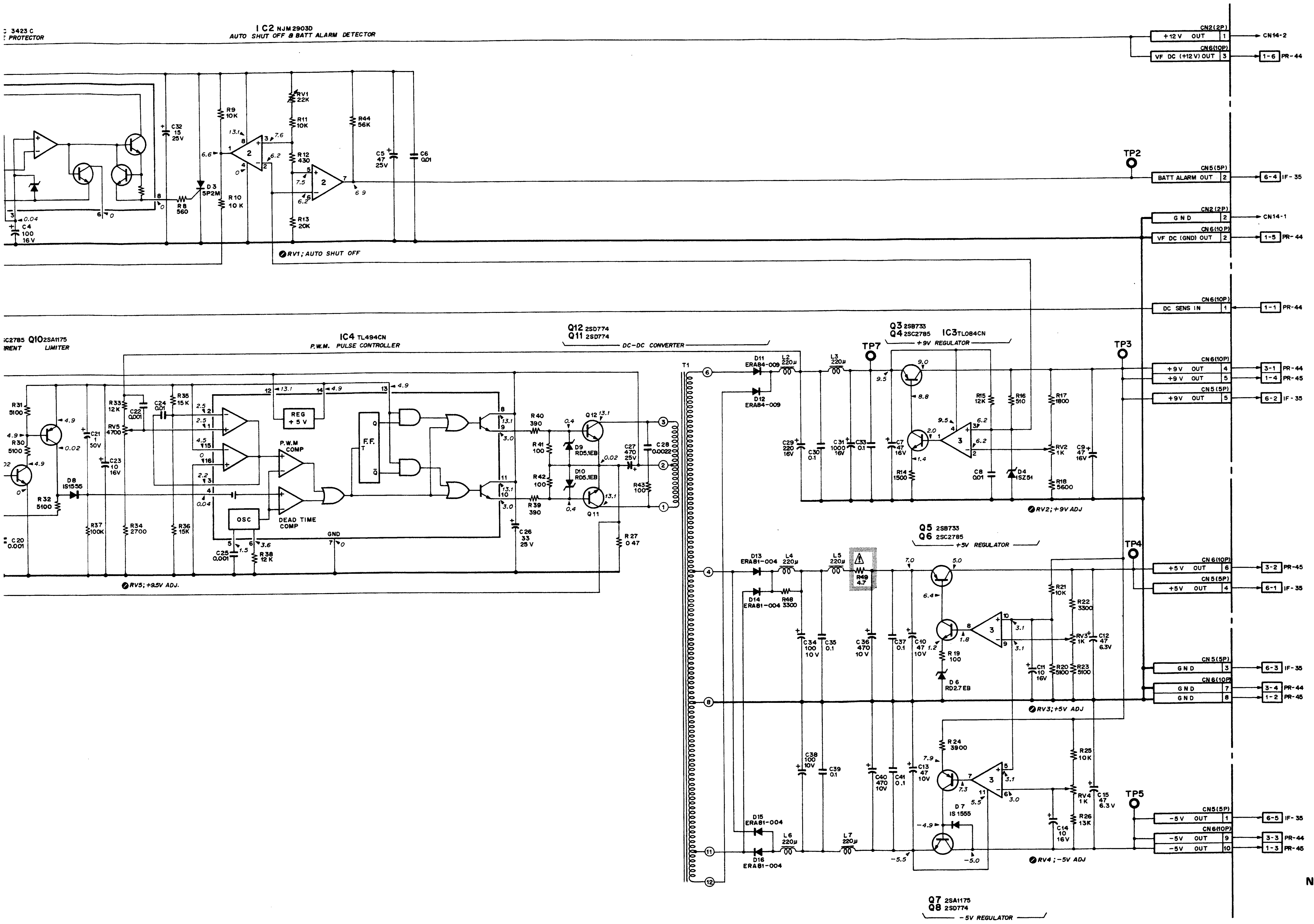

BATT. IN
CN3(2P) 1 BATT (+12V) IN
CN1 (5P) 3 POWER SW
CN1 (5P) 1 POWER SW
POWER ON
OFF
CN1 (5P) 2 POWER SW
CN1(5P) 4 POWER SW
5 POWER SW
CN3(2P) 2 BATT (GND) IN
DC IN (DIN,4P)
CN4 (3P) 1 EXT DC (+12V) IN
2 EXT DC (GND) IN
3 DC SENS
Q1 2SC2785 Q2 2SC2603 EXT DC/BATTERY SELECTOR
R1 10K
R3 56K
R2 1K
R4 10K
C1 0.047
D1 IS1555
R5 3K
C3 47 6.3V
C2 10 16V
D2 IS1555
RY1
F1 125V 1A
TP1
DC SENS AMP
R45 2200
R46 10K
R47 10K
IC1 μPC 3423 C OVER VOLTAGE PROTECTOR
R6 12K
R7 1800
REG 2.6V
C4 100 16V
C32 15 25V
R8 560
D3 5P2M
IC2 NJM2903D AUTO SHUT OFF & BATT ALARM DETECTOR
R9 10K
R10 10 K
RV1 22K
R11 10K
R12 430
R13 20K
R44 56K
C5 47 25V
C6 0.01
RV1; AUTO SHUT OFF
L1
C16 0.1
C17 0.1
C18 470 25V
Q9 2SC2785 Q10 2SA1175 CURRENT LIMITER
R31 5100
R30 5100
R28 5100
R29 1K
C19 33 10V
C20 0.001
R32 5100
D8 IS1555
C21 1 50V
C23 10 16V
R37 100K
R33 12K
RV5 4700
C22 0.001
R34 2700
C24 0.01
R35 15 K
R36 15K
IC4 TL494CN P.W.M. PULSE CONTROLLER
REG +5 V
P.W.M COMP
F.F.
DEAD TIME COMP
OSC
GND
C25 0.001
R38 12 K
RV5; +9.5V ADJ.
E1
Q12 2SD774 Q11 2SD774 DC-DC CONVERTER
R40 390
R41 100
R42 100
R39 390
D9 RD5.1EB
D10 RD5.1EB
C26 33 25 V
C27 470 25V
C28 0.0022
R43 100
R27 0.47
T1
D11 ERA84-009
D12 ERA84-009
L2 220μ
L3 220μ
TP7
C29 220 16V
C30 0.1
C31 1000 16V
C33 0.1
C7 47 16V
R14 1500
Q3 2SB733 Q4 2SC2785 +9V REGULATOR
IC3
D13 ERA81-004
D14 ERA81-004
L4 220μ
R48 3300
L5 220μ
R49 4.7
C34 100 10 V
C35 0.1
C36 470 10 V
C37 0.1
C10 47 10V
R19 100
D6 RD2.7E
Q5 2SB733 Q6 2SC2785 +5V
C38 100 10V
C39 0.1
C40 470 10V
C41 0.1
C13 47 10V
R24 3900
D7 IS155
D15 ERA81-004
D16 ERA81-004
L6 220μ
L7 220μ
Q7 2SA117
Q8 2SD774

CHANGE INFORMATION

R15 220K → 12K
CCU-M3 (J) 10041 ~
CCU-M3 (U/C) 10101 ~
CCU-M3P (AEP) 10071 ~
CCU-M3P (UK) 10021 ~

PS-27 BOARD

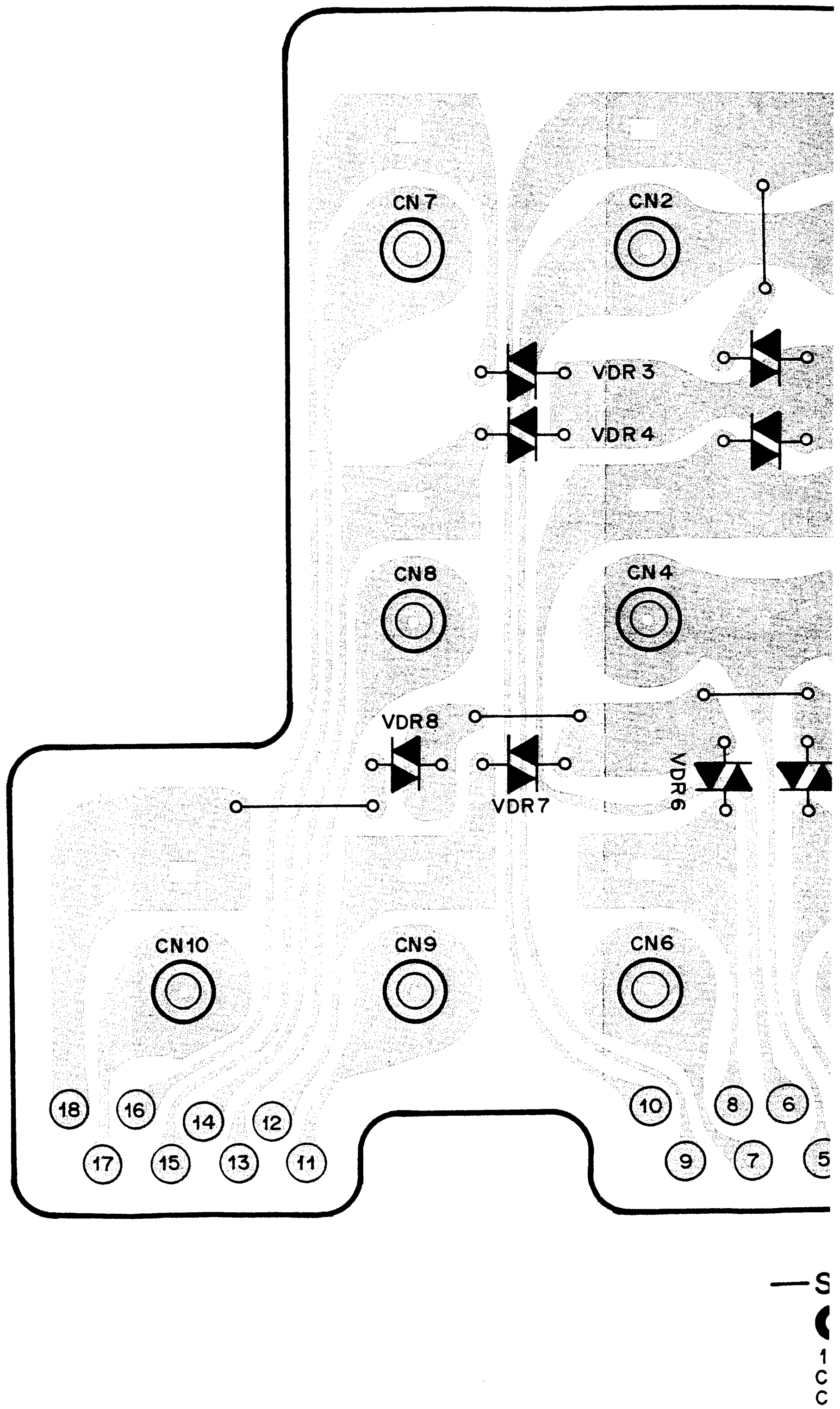
1-610-451-11,12,13
CCU-M3 (J) 10001 ~
CCU-M3 (U/C) 10001 ~
CCU-M3P(AEP) 10001 ~
CCU-M3P(UK) 10001 ~


IC2 NJM2903D
AUTO SHUT OFF & BATT ALARM DETECTOR
IC4 TL494CN
P.W.M. PULSE CONTROLLER
Q12 2SD774
Q11 2SD774
DC-DC CONVERTER
Q10 2SA1175
LIMITER
Q3 2SB733
Q4 2SC2785
IC3 TL084CN
+9V REGULATOR
Q5 2SB733
Q6 2SC2785
+5V REGULATOR
Q7 2SA1175
Q8 2SD774
-5V REGULATOR
REG +5V
P.W.M COMP
DEAD TIME COMP
OSC
F.F.
GND
T1
TP2
TP3
TP4
TP5
TP7
RV1; AUTO SHUT OFF
RV5; +9.5V ADJ.
RV2; +9V ADJ
RV3; +5V ADJ
RV4; -5V ADJ
CN2(2P) +12V OUT 1 CN14-2
CN6(10P) VF DC (+12V) OUT 3 1-6 PR-44
CN5(5P) BATT ALARM OUT 2 6-4 IF-35
CN2(2P) GND 2 CN14-1
CN6(10P) VF DC (GND) OUT 2 1-5 PR-44
CN6(10P) DC SENS IN 1 1-1 PR-44
CN6(10P) +9V OUT 4 3-1 PR-44
+9V OUT 5 1-4 PR-45
CN5(5P) +9V OUT 5 6-2 IF-35
CN6(10P) +5V OUT 6 3-2 PR-45
CN5(5P) +5V OUT 4 6-1 IF-35
CN5(5P) GND 3 6-3 IF-35
CN6(10P) GND 7 3-4 PR-44
GND 8 1-2 PR-45
CN5(5P) -5V OUT 1 6-5 IF-35
CN6(10P) -5V OUT 9 3-3 PR-44
-5V OUT 10 1-3 PR-45
D11 ERA84-009
D12 ERA84-009
D13 ERA81-004
D14 ERA81-004
D15 ERA81-004
D16 ERA81-004
D3 5P2M
D4 1SZ51
D6 RD2.7EB
D7 1S1555
D8 1S1555
D9 RD5.1EB
D10 RD5.1EB
R49 4.7
L2 220µ
L3 220µ
L4 220µ
L5 220µ
L6 220µ
L7 220µ

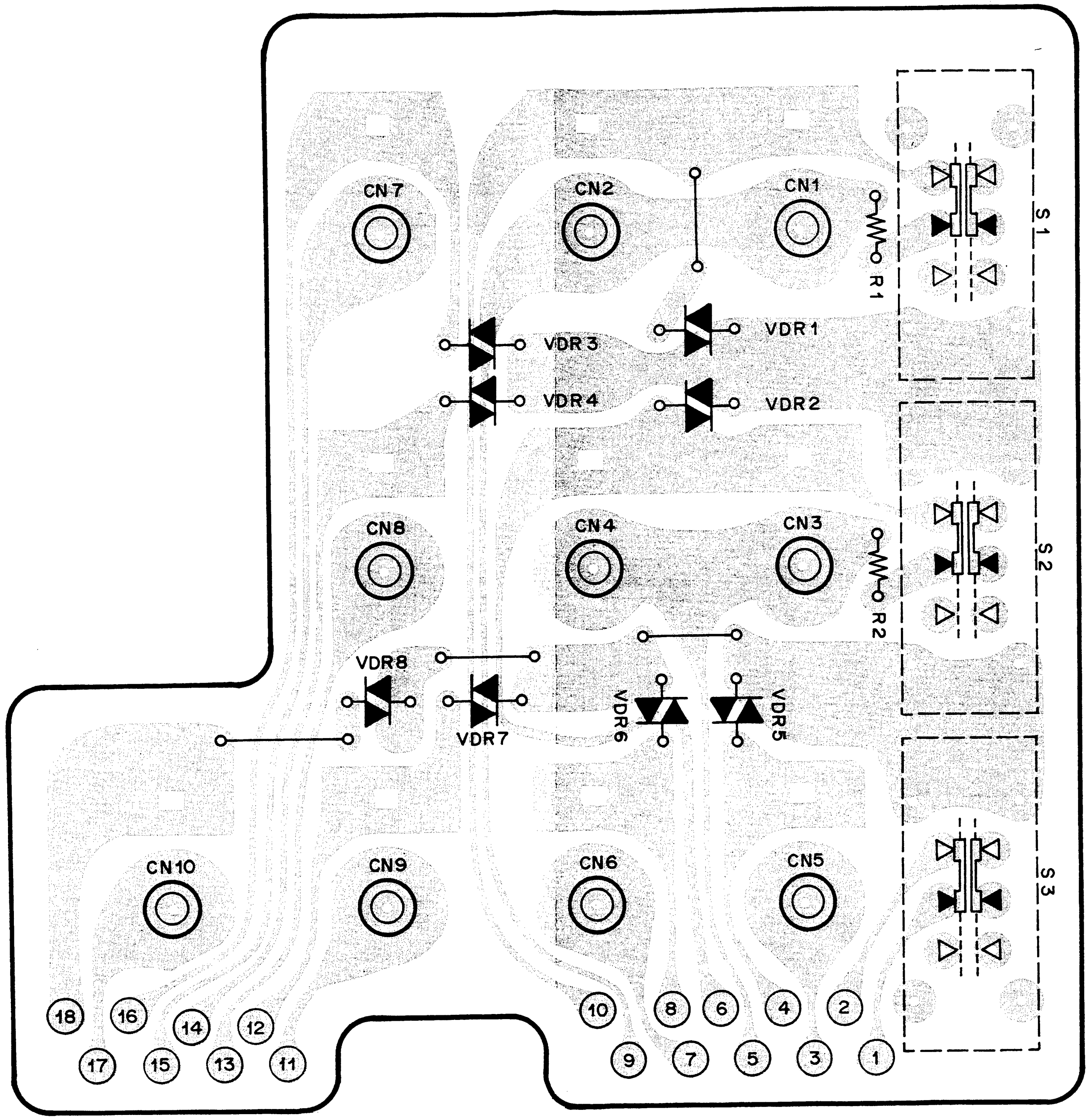
Note:

1. All voltages are dc, measured with a digital volt meter (input resistance 10 MΩ).
2. The shaded and ⚠ -marked components are critical to safety.
Replace only with same components as specified.

5-5. CN-69 BOARD MOUNTING DIAGRAM


CN7
CN2
VDR3
VDR4
CN8
CN4
VDR8
VDR7
VDR6
CN10
CN9
CN6
18
16
14
12
17
15
13
11
10
8
6
9
7
5

5-5. CN-69 BOARD MOUNTING DIAGRAM

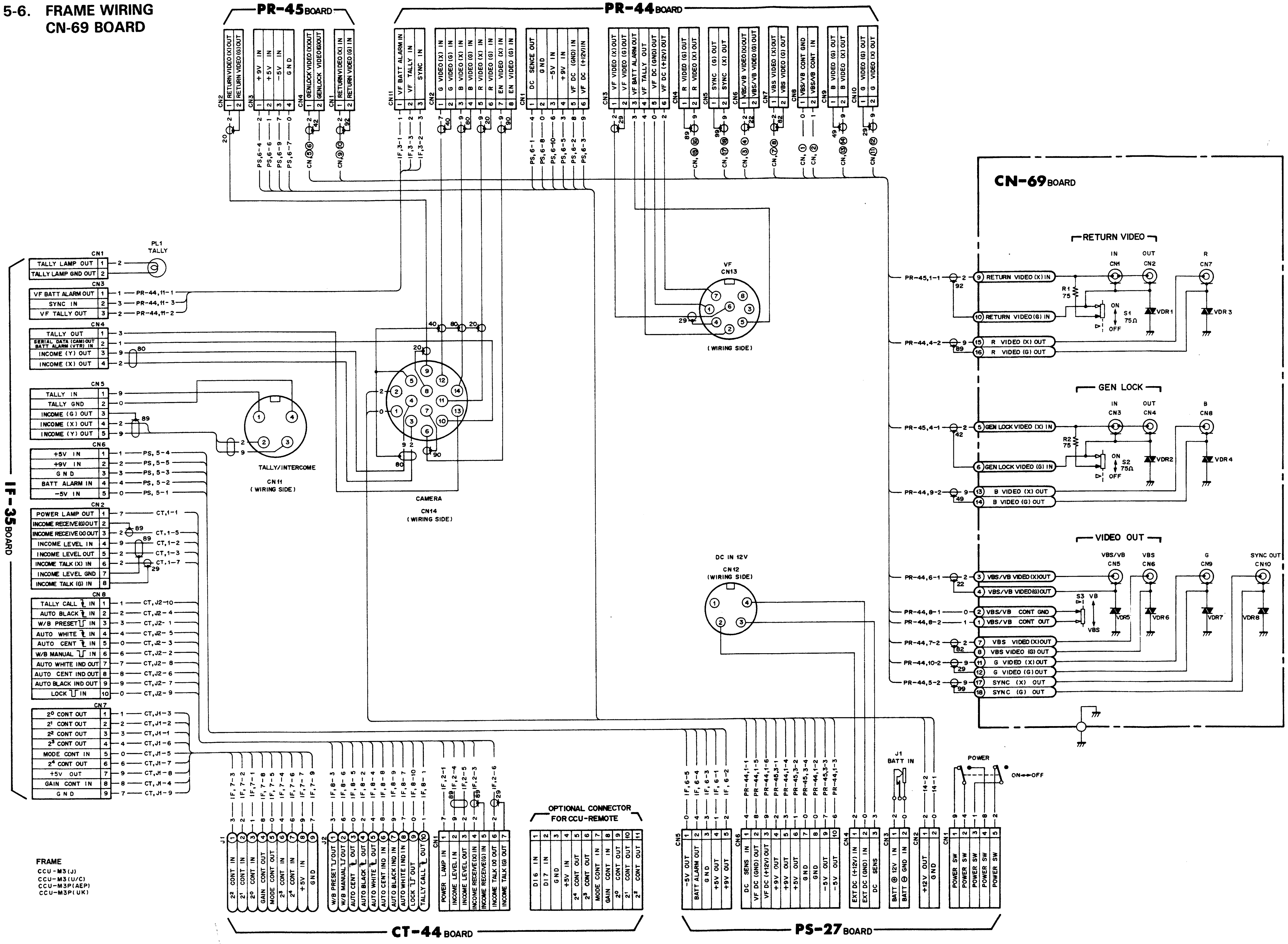

CN7
CN2
CN1
R1
S1
VDR3
VDR1
VDR4
VDR2
CN8
CN4
CN3
R2
S2
VDR8
VDR7
VDR6
VDR5
CN10
CN9
CN6
CN5
S3
18
16
14
12
17
15
13
11
10
8
6
4
2
9
7
5
3
1

—SOLDERING SIDE—

CN-69 BOARD

1-610-454-11
CCU-M3 (J, U/C)
CCU-M3P (AEP, UK)

5-6. FRAME WIRING CN-69 BOARD


PR-45 BOARD
PR-44 BOARD
CN-69 BOARD
RETURN VIDEO
GEN LOCK
VIDEO OUT
IF-35 BOARD
CT-44 BOARD
PS-27 BOARD
OPTIONAL CONNECTOR FOR CCU-REMOTE
PL1 TALLY
VF CN13 (WIRING SIDE)
TALLY/INTERCOME CN11 (WIRING SIDE)
CAMERA CN14 (WIRING SIDE)
DC IN 12V CN12 (WIRING SIDE)
J1 BATT IN
POWER
ON↔OFF
S1 75Ω
S2 75Ω
S3 VB VBS
VDR1
VDR2
VDR3
VDR4
VDR5
VDR6
VDR7
VDR8
RETURN VIDEO (X) IN
RETURN VIDEO (G) IN
R VIDEO (X) OUT
R VIDEO (G) OUT
GEN LOCK VIDEO (X) IN
GEN LOCK VIDEO (G) IN
B VIDEO (X) OUT
B VIDEO (G) OUT
VBS/VB VIDEO (X) OUT
VBS/VB VIDEO (G) OUT
VBS/VB CONT GND
VBS/VB CONT OUT
VBS VIDEO (X) OUT
VBS VIDEO (G) OUT
G VIDEO (X) OUT
G VIDEO (G) OUT
SYNC (X) OUT
SYNC (G) OUT
TALLY LAMP OUT
TALLY LAMP GND OUT
VF BATT ALARM OUT
SYNC IN
VF TALLY OUT
TALLY OUT
INCOME (Y) OUT
INCOME (X) OUT
TALLY IN
TALLY GND
INCOME (G) OUT
+5V IN
+9V IN
GND
BATT ALARM IN
-5V IN
POWER LAMP OUT
INCOME LEVEL IN
INCOME LEVEL OUT
INCOME TALK (X) IN
INCOME LEVEL GND
INCOME TALK (G) IN
TALLY CALL IN
AUTO BLACK IN
W/B PRESET IN
AUTO WHITE IN
AUTO CENT IN
W/B MANUAL IN
AUTO WHITE IND OUT
AUTO CENT IND OUT
AUTO BLACK IND OUT
LOCK IN
2⁰ CONT OUT
2¹ CONT OUT
2² CONT OUT
2³ CONT OUT
MODE CONT IN
2⁴ CONT OUT
+5V OUT
GAIN CONT IN
DC SENCE OUT
VF DC (+12V) IN
EXT DC (+12V) IN
EXT DC (GND) IN
DC SENS
BATT ⊕ 12V IN
BATT ⊖ GND IN
+12V OUT
POWER SW

FRAME
CCU-M3(J)
CCU-M3(U/C)
CCU-M3P(AEP)
CCU-M3P(UK)

SECTION 6
SPARE PARTS AND FIXTURES

6-1. PARTS INFORMATION

1. **Safety Related Component Warning**

   Components identified by shading marked with on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose parts numbers appear as shown in this manual or in service bulletins and service manual supplements published by Sony.

2. Replacement Parts supplied from Sony Parts Center will somtimes have different shape and outside view from the parts which actually in use. This is due to "accommodating the improved parts and/or engineering changes" or "standardization of genuine parts."
   - This manual's exploded views and electrical spare parts lists are indicating the parts numbers of "the standardized genuine parts at present".
   - Regarding engineering parts changes in our engineering department, refer Sony service bulletins and service manual supplements.

3. **Printed Components in Bold-Face type** on the exploded views and electrical spare parts list are normally stocked for replacement purposes. The remaining parts are not normally required for routine service work. Orders for parts not shown in Bold-Face type will be processed, but allow for additional delivery time.

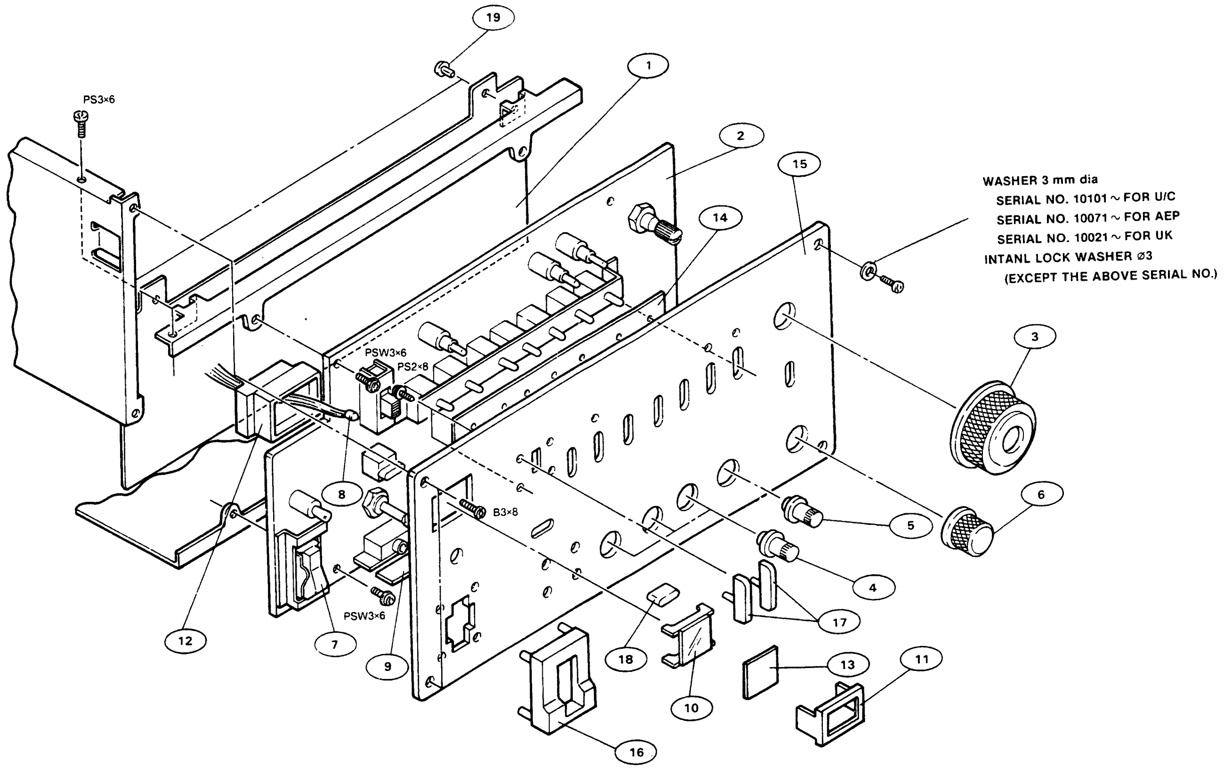
4. Item with no part number and/or no description are not stocked because they are seldom required for routine service.

5. **Screw**

   TOTSU

	B	PS	PSW
3 x 5	7-686-623-04		
3 x 6	7-686-624-09	7-686-447-01	7-686-527-01
3 x 8	7-686-625-09		7-686-528-01

6-2. EXPLODED VIEW
FRONT PANEL BLOCK



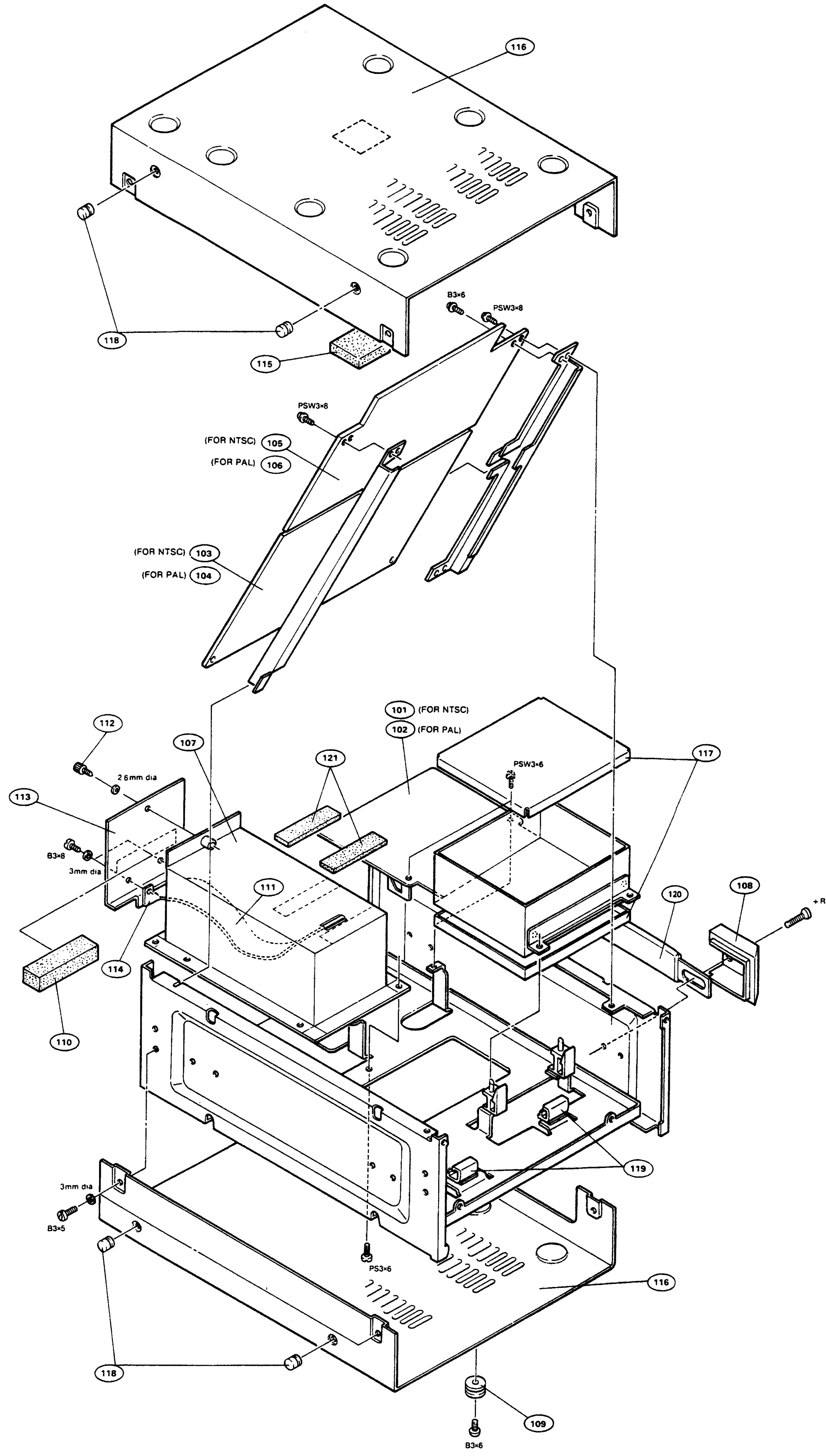
WASHER 3 mm dia
SERIAL NO. 10101 ~ FOR U/C
SERIAL NO. 10071 ~ FOR AEP
SERIAL NO. 10021 ~ FOR UK
INTANL LOCK WASHER ø3
(EXCEPT THE ABOVE SERIAL NO.)

Ref. No.	Parts No.	Description
1	A-7511-960-A	MOUNTED CIRCUIT BOARD "IF-35"
2	A-7511-956-A	MOUNTED CIRCUIT BOARD "CT-44"
3	**X-2270-601-0**	**KNOB ASSY**
4	**X-2381-905-0**	**KNOB ASSY (R)**
5	**X-2381-906-0**	**KNOB ASSY (B)**
6	**X-3651-342-0**	**KNOB ASSY, CONTROL**
7	**1-516-379-00**	**SWITCH, SEESAW**
8	**1-518-327-21**	**LAMP, PILOT**
9	1-610-455-00	PRINTED CIRCUIT BOARD "JK-6"
10	2-249-303-00	WINDOW (2), REMOTE CONTROL
11	2-249-304-02	FRAME (2), WINDOW, REMOTE CONTROL
12	2-249-306-00	HOLDER, LAMP
13	**2-249-307-00**	**INDICATOR, REMOTE**
14	2-381-905-00	COVER, TOGGLE SWITCH
15	2-381-910-00	PANEL, FRONT
16	**2-251-642-00**	**GUARD, POWER, SWITCH**
17	**3-539-823-00**	**KNOB**
18	**4-335-304-00**	**BUTTON, TUNING**
19	**4-812-134-00**	**RIVET, NYLON 3.5**

NOTE:

1. Parts printed in **Bold-Face type** are normally stocked for replacement purposes. The remaining parts shown in this manual are not normally required for routine service work. Orders for parts not shown in Bold-Face type will be processed, but allow for additional delivery time.
2. Item with no part number and/or no description are not stocked because they are seldom required for routine service.

CHASSIS ASSY BLOCK


116
118
115
B3×6
PSW3×8
PSW3×8
(FOR NTSC) 105
(FOR PAL) 106
(FOR NTSC) 103
(FOR PAL) 104
101 (FOR NTSC)
102 (FOR PAL)
112
107
121
117
PSW3×6
2.6mm dia
113
B3×8
3mm dia
111
120
108
+RK4×14
114
110
119
3mm dia
B3×5
PS3×6
116
118
109
B3×6

Ref. No.	Parts No.	Description
⚠101	A-7511-958-A	MOUNTED CIRCUIT BOARD "PS-27" (FOR NTSC)
⚠102	A-7511-959-A	MOUNTED CIRCUIT BOARD "PS-27" (FOR PAL)
103	A-7511-961-A	MOUNTED CIRCUIT BOARD "PR-44" (FOR NTSC)
104	A-7511-962-A	MOUNTED CIRCUIT BOARD "PR-44" (FOR PAL)
105	A-7511-963-A	MOUNTED CIRCUIT BOARD "PR-45" (FOR NTSC)
106	A-7511-964-A	MOUNTED CIRCUIT BOARD "PR-45" (FOR PAL)
107	X-2381-901-0	CASE ASSY, BATTERY
108	2-253-306-00	TABLE, HANDLE
109	2-279-001-00	FOOT
110	2-279-507-00	CUSHION, BATTERY
111	2-279-511-00	RIBBON
112	**2-279-513-00**	**SCREW, PANEL, BATTERY**
113	2-279-516-00	PANEL, BATTERY
114	2-279-517-00	BRACKET, RIBBON
115	2-279-520-00	CUSHION
116	2-381-914-01	COVER (UPPER)
	2-381-914-11	COVER (LOWER)
117	2-381-927-00	CASE, SHIELD (LID)
118	**3-701-188-XX**	**FOOT, RUBBER**
119	3-703-072-00	HOLDER, PCB
120	**3-419-372-21**	**HANDLE**
121	**4-011-926-XX**	**CUSHION**

NOTE:

1. **The shaded and ⚠ -marked components are critical to safety. Replace only with same component as specified.**
2. Parts printed in **Bold-Face type** are normally stocked for replacement purposes. The remaining parts shown in this manual are not normally required for routine service work. Orders for parts not shown in Bold-Face type will be processed, but allow for additional delivery time.
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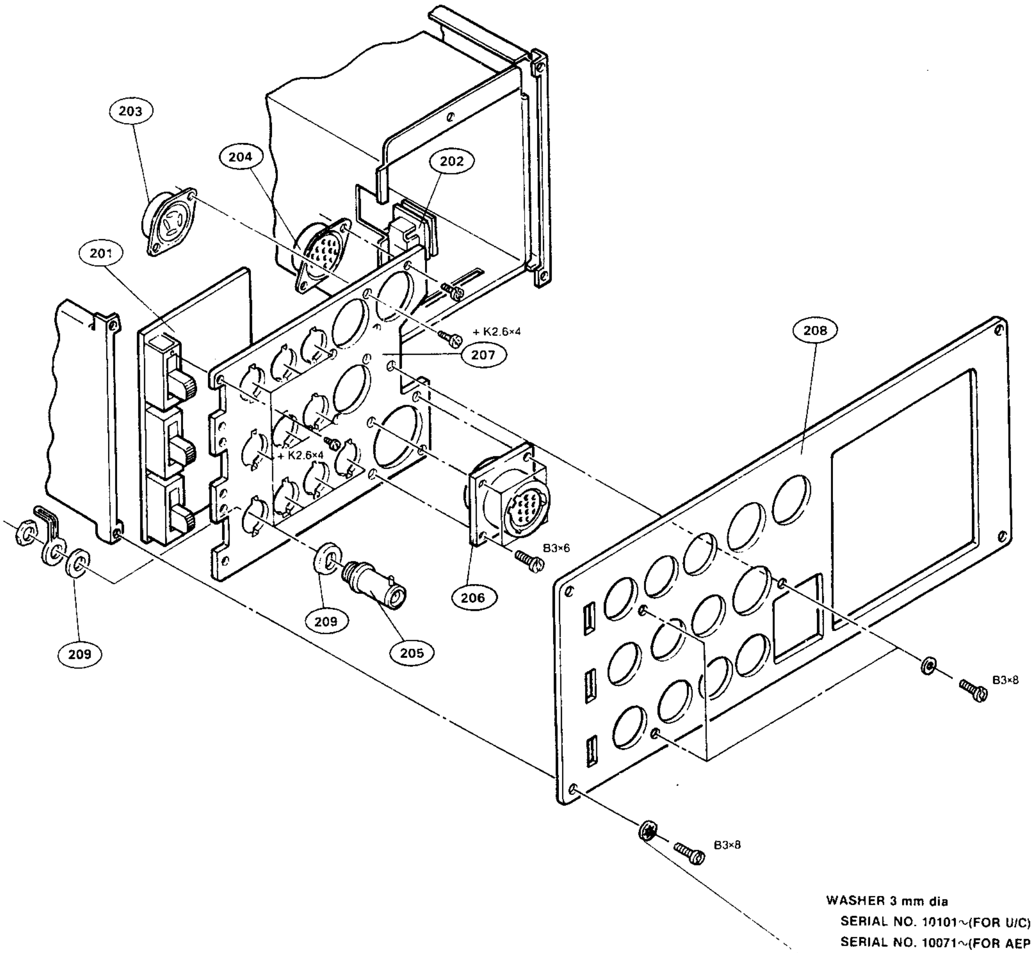
REAR PANEL BLOCK



WASHER 3 mm dia
SERIAL NO. 10101~(FOR U/C)
SERIAL NO. 10071~(FOR AEP)
SERIAL NO. 10021~(FOR UK)
INTANL LOCK WASHER 3 mm dia
(EXCEPT THE ABOVE SERIAL NO.)

Ref. No.	Parts No.	Description
201	1-610-454-00	PRINTED CIRCUIT BOARD "CN-69"
202	**1-507-465-00**	**POWER, JACK**
203	**1-526-531-00**	**RECEPTACLE, DIN 4P "TALLY/INCOM" (CN11)**
204	**1-561-320-00**	**RECEPTACLE, DIN 8P "VF" (CN13)**
205	**1-561-336-00**	**BNC, CONNECTOR**
206	**1-562-040-00**	**CONNECTER, 14P FEMALE "CAMERA" (CN14)**
207	2-381-901-00	BRACKET
208	2-381-911-00	PANEL, REAR
209	**3-654-545-00**	**SPACER, BNC**

NOTE:

1. Parts printed in **Bold-Face type** are normally stocked for replacement purposes. The remaining parts shown in this manual are not normally required for routine service work. Orders for parts not shown in Bold-Face type will be processed, but allow for additional delivery time.
2. Item with no part number and/or no description are not stocked because they are seldom required for routine service.

6-3. ELECTRICAL PARTS LIST

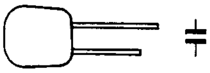
Parts that are not listed in the "reference numbers order list" are shown in following table.
Reference numbers are omitted.

CAPACITOR

Parts that are not listed in the "reference numbers order list" are shown in following table.
Reference numbers are omitted.

SILVERED MICA CAPACITOR

1 pF through 8.2 pF ±0.5 pF 500V
10 pF through 680 pF ±5% 500V
750 pF ±10% 500V

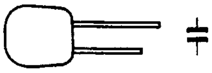


Parts No. 1-107-□□□-00

Value	Parts No. —□□□—	Value	Parts No. —□□□—	Value	Parts No. —□□□—	Value	Parts No. —□□□—
1 pF	019	12 pF	204	51 pF	164	220 pF	177
1.2	039	13	205	56	165	240	178
1.5	040	15	206	62	166	270	179
1.8	041	16	207	68	036	300	180
2.2	042	18	208	75	167	330	181
2.7	043	20	209	82	037	360	182
3.3	044	22	210	91	168	390	183
3.9	045	24	211	100	169	430	184
4.7	046	27	157	110	170	470	185
5.1	026	30	158	120	171	510	186
5.6	047	33	159	130	172	560	187
6.8	048	36	160	150	173	620	188
8.2	049	39	161	160	174	680	212
10	202	43	162	180	175	750	258
11	203	47	163	200	176		

SILVERED MICA CAPACITOR

1 pF through 620 pF
±5%, 50WV



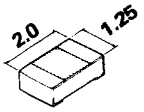
Parts No. 1-107-□□□-00

Value	Parts No. —□□□—	Value	Parts No. —□□□—	Value	Parts No. —□□□—	Value	Parts No. —□□□—
1 pF	098	15 pF	065	51 pF	078	180 pF	091
2	099	16	066	56	079	200	092
3	100	18	067	62	080	220	093
4	101	20	068	68	081	240	094
5	102	22	069	75	082	270	095
6	103	24	070	82	083	300	096
7	104	27	071	91	084	330	097
8	105	30	072	100	085	360	231
9	106	33	073	110	086	390	232
10	061	36	074	120	087	430	233
11	062	39	075	130	088	470	234
12	063	43	076	150	089	510	235
13	064	47	077	160	090	560	236
						620	237

RESISTOR

**Parts that are not listed in the "reference numbers order list " are shown in following table.
Reference numbers are omitted.**

CHIP RESISTOR



±5% 1/10W
0Ω through 3.3MΩ

Parts No. 1-216-□□□-00

Value	Parts No. – □□□ –
0Ω	295
1Ω	—
1.1	—
1.2	—
1.3	—
1.5	—
1.6	—
1.8	—
2	—
2.2	298
2.4	301
2.7	302
3	303
3.3	304
3.6	305
3.9	306
4.3	307
4.7	308
5.1	297
5.6	309
6.2	310
6.8	311
7.5	312
8.2	313
9.1	314
10Ω	001
11	002
12	003
13	004
15	005
16	006
18	007
20	008
22	009
24	010
27	011

Value	Parts No. – □□□ –
30	012
33Ω	013
36	014
39	015
43	016
47	017
51	018
56	019
62	020
68	021
75	022
82	023
91	024
100Ω	025
110	026
120	027
130	028
150	029
160	030
180	031
200	032
220	033
240	034
270	035
300	036
330	037
360	038
390	039
430	040
470	041
510	042
560	043
620	044
680	045
750	046
820	047

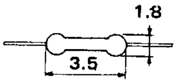
Value	Parts No. – □□□ –
910	048
1kΩ	049
1.1	050
1.2	051
1.3	052
1.5	053
1.6	054
1.8	055
2	056
2.2	057
2.4	058
2.7	059
3	060
3.3	061
3.6	062
3.9	063
4.3	064
4.7	065
5.1	066
5.6	067
6.2	068
6.8	069
7.5	070
8.2	071
9.1	072
10kΩ	073
11	074
12	075
13	076
15	077
16	078
18	079
20	080
22	081
24	082
27	083

Value	Parts No. – □□□ –
30	084
33kΩ	085
36	086
39	087
43	088
47	089
51	090
56	091
62	092
68	093
75	094
82	095
91	096
100kΩ	097
110	098
120	099
130	100
150	101
160	102
180	103
200	104
220	105
240kΩ	106
270	107
300	108
330	109
360	110
390	111
430	112
470	113
510	114
560	115
620	116
680	117
750	118
820	119

Value	Parts No. – □□□ –
910	120
1MΩ	121
1.1	122
1.2	123
1.3	124
1.5	125
1.6	126
1.8	127
2	128
2.2	129
2.4	130
2.7	131
3	132
3.3	133

CARBON RESISTOR (1/6W)

±5%, 1/6W, non-special type
2.2Ω through 1MΩ



Parts No. 1-247-□□□-00

Value	Parts No. –□□□–	Value	Parts No. –□□□–	Value	Parts No. –□□□–	Value	Parts No. –□□□–
1Ω	–	36Ω	796	1.2kΩ	833	43kΩ	870
1.1	–	39	797	1.3	834	47	871
1.2	–	43	798	1.5	835	51	872
1.3	–	47	799	1.6	836	56	873
1.5	–	51	800	1.8	837	62	874
1.6	–	56	801	2	838	68	875
1.8	–	62	802	2.2	839	75	876
2	–	68	803	2.4	840	82	877
2.2	767	75	804	2.7	841	91	878
2.4	768	82	805	3	842	100kΩ	879
2.7	769	91	806	3.3	843	110	880
3	770	100Ω	807	3.6	844	120	881
3.3	771	110	808	3.9	845	130	882
3.6	772	120	809	4.3	846	150	883
3.9	773	130	810	4.7	847	160	884
4.3	774	150	811	5.1	848	180	885
4.7	775	160	812	5.6	849	200	886
5.1	776	180	813	6.2	850	220	887
5.6	777	200	814	6.8	851	240	888
6.2	778	220	815	7.5	852	270	889
6.8	779	240	816	8.2	853	300	890
7.5	780	270	817	9.1	854	330	891
8.2	781	300	818	10kΩ	855	360	892
9.1	782	330	819	11	856	390	893
10Ω	783	360	820	12	857	430	894
11	784	390	821	13	858	470	895
12	785	430	822	15	859	510	896
13	786	470	823	16	860	560	897
15	787	510	824	18	861	620	898
16	788	560	825	20	862	680	899
18	789	620	826	22	863	750	900
20	790	680	827	24	864	820	901
22	791	750	828	27	865	910	902
24	792	820	829	30	866	1MΩ	903
27	793	910	830	33	867		
30	794	1kΩ	831	36	868		
33	795	1.1	832	39	869		

ABBREVIATION

Ref. No.	DESCRIPTION	Ref. No.	DESCRIPTION	Ref. No.	DESCRIPTION
C	CAPACITOR	IC	IC	R	RESISTOR
CN	CONNECTOR	J	JACK	RV	VARIABLE RESISTOR
D	DIODE	L	INDUCTOR	RY	RELAY
DL	DELAY LINE	LV	VARIABLE INDUCTOR	S	SWITCH
F	FUSE	PL	PILOT LAMP	T	TRANSFORMER
FL	FILTER	Q	TRANSISTOR	VDR	VARISTOR

All capacitors are in micro farads unless otherwise specified.
All inductors are in micro henries unless otherwise specified.
All resistors are in ohms.

CN-69 BOARD

Ref. No.	Part No.	Description
	1-610-454-00	PRINTED CIRCUIT BOARD "CN-69"
R1	**1-215-394-00**	**METAL 75 1% 1/6W**
R2	**1-215-394-00**	**METAL 75 1% 1/6W**
S1	**1-516-576-00**	**SLIDE**
S2	**1-516-576-00**	**SLIDE**
S3	**1-516-576-00**	**SLIDE**
VDR1	**1-806-497-00**	**ERZ-C05DK220**
VDR2	**1-806-497-00**	**ERZ-C05DK220**
VDR3	**1-806-497-00**	**ERZ-C05DK220**
VDR4	**1-806-497-00**	**ERZ-C05DK220**
VDR5	**1-806-497-00**	**ERZ-C05DK220**
VDR6	**1-806-497-00**	**ERZ-C05DK220**
VDR7	**1-806-497-00**	**ERZ-C05DK220**
VDR8	**1-806-497-00**	**ERZ-C05DK220**

CT-44 BOARD

Ref. No.	Part No.	Description
	A-7511-956-A	MOUNTED CIRCUIT BOARD "CT-44"
C1	**1-123-646-00**	**ELECT 33 20% 6.3V**
C2	**1-161-013-00**	**CERAMIC 0.01 10% 25V**
C3	**1-161-013-00**	**CERAMIC 0.01 10% 25V**
C4	**1-161-013-00**	**CERAMIC 0.01 10% 25V**
C5	**1-161-013-00**	**CERAMIC 0.01 10% 25V**
C6	**1-161-013-00**	**CERAMIC 0.01 10% 25V**
C7	**1-161-013-00**	**CERAMIC 0.01 10% 25V**
C8	**1-161-013-00**	**CERAMIC 0.01 10% 25V**
C9	**1-161-013-00**	**CERAMIC 0.01 10% 25V**
CN1	1-564-006-00	RECEPTACLE, 7P MALE
	1-562-152-00	PLUG HOUSING 7P
	1-564-026-00	PLUG CONTACT
D1	**8-719-822-06**	**TLG206 "AUTO CENT"**
D2	**8-719-822-06**	**TLG206 "AUTO BLK BAL"**
D3	**8-719-822-06**	**TLG206 "AUTO WHT BAL"**
D4	**8-719-820-15**	**TLG115A "POWER"**

NOTE:

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Replace only with same components as specified.

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Ref. No.	Part No.	Description
IC1	**8-759-240-11**	**TC4011BP: TOSHIBA**
IC2	**8-759-240-51**	**TC4051BP: TOSHIBA**
IC3	**8-759-240-51**	**TC4051BP: TOSHIBA**
IC4	**8-759-240-51**	**TC4051BP: TOSHIBA**
IC5	**8-759-240-11**	**TC4011BP: TOSHIBA**
RV1	**1-226-944-00**	**CARBON 10K "SC PHASE"**
RV2	**1-226-944-00**	**CARBON 10K "H PHASE"**
RV3	**1-226-947-00**	**CARBON 10K "B GAIN"**
RV4	**1-226-947-00**	**CARBON 10K "R GAIN"**
RV5	**1-226-947-00**	**CARBON 10K "IRIS"**
RV6	**1-226-948-00**	**CARBON 10K "PEDESTAL"**
RV7	**1-226-947-00**	**CARBON 10K "B PED"**
RV8	**1-226-947-00**	**CARBON 10K "R PED"**
RV9	**1-226-945-00**	**CARBON 20K "INTER COM"**
S1	**1-552-774-00**	**PUSH "CALL"**
S2	**1-554-504-00**	**TOGGLE "AUTO CENT"**
S3	**1-554-504-00**	**TOGGLE "W/B BAL"**
S4	**1-554-504-00**	**TOGGLE "W/B BAL"**
S5	**1-553-526-00**	**SLIDE "LOCK"**
S6	**1-554-502-00**	**TOGGLE "IRIS"**
S7	**1-554-502-00**	**TOGGLE "SC PHASE"**
S8	**1-554-503-00**	**TOGGLE "GAIN"**
S9	**1-554-503-00**	**TOGGLE "PRESET/MANUAL"**
S10	**1-554-502-00**	**TOGGLE "MODE"**

IF-35 BOARD

Ref. No.	Part No.	Description
	A-7511-960-A	MOUNTED CIRCUIT BOARD "IF-35"
C1	**1-131-371-00**	**TANTALUM 10 10% 16V**
C2	**1-131-371-00**	**TANTALUM 10 10% 16V**
C3	**1-124-291-00**	**ELECT 22 20% 6.3V**
C4	**1-123-618-00**	**ELECT 22 20% 6.3V**
C5	**1-161-013-00**	**CERAMIC 0.01 10% 25V**
C6	**1-123-647-00**	**ELECT 47 20% 6.3V**
C7	**1-123-647-00**	**ELECT 47 20% 6.3V**
C8	**1-123-821-00**	**ELECT 47 20% 16V**
C9	**1-123-611-00**	**ELECT 1 20% 50V**
C10	**1-123-647-00**	**ELECT 47 20% 6.3V**
C11	**1-123-647-00**	**ELECT 47 20% 6.3V**
C12	**1-123-661-00**	**ELECT 100 20% 6.3V**
C13	**1-124-142-00**	**ELECT 470 20% 10V**
C14	**1-123-661-00**	**ELECT 100 20% 6.3V**
C15	**1-123-618-00**	**ELECT 22 20% 6.3V**
C16	**1-161-013-00**	**CERAMIC 0.01 10% 25V**
C17	**1-123-617-00**	**ELECT 10 20% 16V**
C18	**1-161-039-00**	**CERAMIC 0.001 10% 25V**
C19	**1-161-007-00**	**CERAMIC 0.0033 10% 25V**
C20	**1-123-645-00**	**ELECT 33 20% 10V**
CN1	1-564-001-00	RECEPTACLE, 2P MALE
	1-562-147-00	PLUG HOUSING 2P
	1-564-026-00	PLUG CONTACT
CN2	1-564-007-00	RECEPTACLE, 8P MALE
	1-562-153-00	PLUG HOUSING 8P
	1-564-026-00	PLUG CONTACT
CN3	1-564-002-00	RECEPTACLE, 3P MALE
	1-562-148-00	PLUG HOUSING 3P
	1-564-026-00	PLUG CONTACT
CN4	1-564-003-00	RECEPTACLE, 4P MALE
	1-562-149-00	PLUG HOUSING 4P
	1-564-026-00	PLUG CONTACT
CN5	1-564-004-00	RECEPTACLE, 5P MALE
	1-562-150-00	PLUG HOUSING 5P
	1-564-026-00	PLUG CONTACT
CN6	1-564-004-00	RECEPTACLE, 5P MALE
	1-562-150-00	PLUG HOUSING 5P
	1-564-026-00	PLUG CONTACT
CN7	1-564-008-00	RECEPTACLE, 9P MALE
	1-562-154-00	PLUG HOUSING 9P
	1-564-026-00	PLUG CONTACT
CN8	1-564-009-00	RECEPTACLE, 10P MALE
	1-562-155-00	PLUG HOUSING 4P
	1-564-026-00	PLUG CONTACT
D1	**8-719-815-55**	**1S1555**
D2	**8-719-815-55**	**1S1555**
D3	**8-719-815-55**	**1S1555**
D4	**8-719-815-55**	**1S1555**
D5	**8-719-815-55**	**1S1555**
D6	**8-719-815-55**	**1S1555**
D7	**8-719-815-55**	**1S1555**
D8	**8-719-815-55**	**1S1555**
D9	**8-719-815-55**	**1S1555**
D10	**8-719-815-55**	**1S1555**
D11	**8-719-815-55**	**1S1555**
D12	**8-719-143-07**	**RD4.3EB**
D13	**8-719-815-55**	**1S1555**
D14	**8-719-815-55**	**1S1555**

NOTE:

1. **The shaded and ⚠ -marked components are critical to safety. Replace only with same components as specified.**
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Ref. No.	Part No.	Description
IC1	8-759-245-28	TC4528BP: TOSHIBA
IC2	8-759-131-11	μPC311C: NEC
IC3	8-759-240-69	TC4069UBP: TOSHIBA
IC4	8-759-300-06	HD44820A69: HITACHI
IC5	8-759-990-82	TL082CP: TI
IC6	8-759-990-82	TL082CP: TI
Q1	8-729-178-54	2SC2785
Q2	8-729-178-54	2SC2785
Q3	8-729-178-54	2SC2785
Q4	8-729-178-54	2SC2785
Q5	8-729-178-54	2SC2785
Q6	8-729-178-54	2SC2785
Q7	8-729-178-54	2SC2785
Q8	8-729-178-54	2SC2785
Q9	8-729-117-54	2SA1175
Q10	8-729-117-54	2SA1175
Q11	8-729-178-54	2SC2785
Q12	8-729-117-54	2SA1175
Q13	8-729-117-54	2SA1175
Q14	8-729-117-54	2SA1175
Q15	8-729-117-54	2SA1175
R20	1-215-468-00	METAL 91K 1% 1/6W
RP1	1-232-509-00	Resistor Block
RV1	1-228-888-00	METAL 1K
T1	1-427-487-00	OUTPUT

JK-6 BOARD

Ref. No.	Part No.	Description
	1-610-455-00	PRINTED CIRCUIT BOARD "JK-6"
J1	1-507-883-00	JACK, SMALL TYPE 4P "INTER COM"

PR-44 BOARD

Ref. No.	Part No.	Description
	A-7511-961-A	MOUNTED CIRCUIT BOARD "PR-44" (NTSC)
	A-7511-962-A	MOUNTED CIRCUIT BOARD "PR-44" (PAL)

Ref. No.	Part No.	Description
C1	1-123-645-00	ELECT 33 20% 10V
C2	1-163-001-00	CERAMIC CHIP 220PF 10% 50V
C4	1-163-001-00	CERAMIC CHIP 220PF 10% 50V
C5	1-123-618-00	ELECT 22 20% 6.3V
C6	1-131-385-00	TANTALUM 22 10% 6.3V
C7	1-163-021-00	CERAMIC CHIP 0.01 10% 50V
C8	1-123-645-00	ELECT 33 20% 10V
C9	1-131-354-00	TANTALUM 1.5 10% 25V
C10	1-131-375-00	TANTALUM 4.7 10% 10V
C11	1-131-361-00	TANTALUM 2.2 10% 20V
C12	1-131-361-00	TANTALUM 2.2 10% 20V
C13	1-123-645-00	ELECT 33 20% 10V
C14	1-123-645-00	ELECT 33 20% 10V
C15	1-123-646-00	ELECT 33 20% 6.3V
C16	1-163-251-00	CERAMIC CHIP 100PF 5% 50V
C18	1-123-609-00	ELECT 0.33 20% 50V
C19	1-163-239-00	CERAMIC CHIP 33PF 5% 50V
C20	1-123-617-00	ELECT 10 20% 16V
C21	1-131-341-00	TANTALUM 0.1 10% 35V
C22	1-131-341-00	TANTALUM 0.1 10% 35V
C23	1-131-369-00	TANTALUM 4.7 10% 16V
C24	1-163-021-00	CERAMIC CHIP 0.01 10% 50V
C25	1-123-618-00	ELECT 22 20% 6.3V
C26	1-163-003-00	CERAMIC CHIP 330PF 10% 50V
C27	1-124-139-00	ELECT 100 20% 10V
C28	1-123-645-00	ELECT 33 20% 10V
C29	1-123-618-00	ELECT 22 20% 6.3V
C30	1-123-617-00	ELECT 10 20% 16V
C31	1-123-645-00	ELECT 33 20% 10V
C32	1-124-139-00	ELECT 100 20% 10V
C33	1-124-471-00	ELECT 1000 20% 6.3V
C35	1-123-645-00	ELECT 33 20% 10V
C39	1-163-239-00	CERAMIC CHIP 33PF 5% 50V
C40	1-131-341-00	TANTALUM 0.1 10% 35V
C41	1-163-003-00	CERAMIC CHIP 330PF 10% 50V
C42	1-131-380-00	TANTALUM 33 10% 10V
C43	1-123-646-00	ELECT 33 20% 6.3V
C45	1-124-442-00	ELECT 330 20% 6.3V
C46	1-123-645-00	ELECT 33 20% 10V
C48	1-123-645-00	ELECT 33 20% 10V
C50	1-123-645-00	ELECT 33 20% 10V
C51	1-123-618-00	ELECT 22 20% 6.3V
C53	1-124-442-00	ELECT 330 20% 6.3V
C55	1-123-645-00	ELECT 33 20% 10V
C56	1-124-139-00	ELECT 100 20% 10V
C58	1-123-646-00	ELECT 33 20% 6.3V
C62	1-123-645-00	ELECT 33 20% 10V
C64	1-123-618-00	ELECT 22 20% 6.3V
C66	1-124-444-00	ELECT 220 20% 10V
C67	1-123-645-00	ELECT 33 20% 10V

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Ref. No.	Part No.	Description
C69	**1-124-139-00**	**ELECT 100 20% 10V**
C70	**1-123-646-00**	**ELECT 33 20% 6.3V**
C74	**1-123-618-00**	**ELECT 22 20% 6.3V**
C77	**1-124-444-00**	**ELECT 220 20% 10V**
C78	**1-124-139-00**	**ELECT 100 20% 10V**
C80	**1-123-645-00**	**ELECT 33 20% 10V**
C81	**1-123-646-00**	**ELECT 33 20% 6.3V**
C85	**1-123-645-00**	**ELECT 33 20% 10V**
C87	**1-123-618-00**	**ELECT 22 20% 6.3V**
C89	**1-124-444-00**	**ELECT 220 20% 10V**
C90	**1-123-645-00**	**ELECT 33 20% 10V**
C91	**1-163-038-00**	**CERAMIC CHIP 0.1 25V**
C92	**1-163-038-00**	**CERAMIC CHIP 0.1 25V**
C93	**1-163-038-00**	**CERAMIC CHIP 0.1 25V**
C94	**1-163-038-00**	**CERAMIC CHIP 0.1 25V**
C95	**1-163-038-00**	**CERAMIC CHIP 0.1 25V**
C96	**1-163-038-00**	**CERAMIC CHIP 0.1 25V**
C97	**1-163-038-00**	**CERAMIC CHIP 0.1 25V**
C98	**1-163-038-00**	**CERAMIC CHIP 0.1 25V**
C99	**1-163-038-00**	**CERAMIC CHIP 0.1 25V**
C100	**1-163-038-00**	**CERAMIC CHIP 0.1 25V**
C101	**1-163-038-00**	**CERAMIC CHIP 0.1 25V**
C102	**1-163-038-00**	**CERAMIC CHIP 0.1 25V**
C103	**1-163-038-00**	**CERAMIC CHIP 0.1 25V**
C104	**1-163-038-00**	**CERAMIC CHIP 0.1 25V**
C105	**1-163-038-00**	**CERAMIC CHIP 0.1 25V**
C106	**1-163-038-00**	**CERAMIC CHIP 0.1 25V**
C107	**1-163-038-00**	**CERAMIC CHIP 0.1 25V**
C108	**1-163-038-00**	**CERAMIC CHIP 0.1 25V**
C109	**1-123-645-00**	**ELECT 33 20% 10V**
C110	**1-163-038-00**	**CERAMIC CHIP 0.1 25V**
C111	**1-123-618-00**	**ELECT 22 20% 6.3V**
C112	**1-163-038-00**	**CERAMIC CHIP 0.1 25V**
C113	**1-123-645-00**	**ELECT 33 20% 10V**
C114	**1-163-038-00**	**CERAMIC CHIP 0.1 25V**
C115	**1-123-618-00**	**ELECT 22 20% 6.3V**
C116	**1-163-038-00**	**CERAMIC CHIP 0.1 25V**
C117	**1-123-645-00**	**ELECT 33 20% 10V**
C118	**1-163-038-00**	**CERAMIC CHIP 0.1 25V**
C119	**1-123-618-00**	**ELECT 22 20% 6.3V**
C120	**1-163-038-00**	**CERAMIC CHIP 0.1 25V**
C121	**1-123-645-00**	**ELECT 33 20% 10V**
C122	**1-163-038-00**	**CERAMIC CHIP 0.1 25V**
C123	**1-123-618-00**	**ELECT 22 20% 6.3V**
C124	**1-163-038-00**	**CERAMIC CHIP 0.1 25V**
C125	**1-123-645-00**	**ELECT 33 20% 10V**
C126	**1-163-038-00**	**CERAMIC CHIP 0.1 25V**
C127	**1-123-618-00**	**ELECT 22 20% 6.3V**
C128	**1-163-038-00**	**CERAMIC CHIP 0.1 25V**
C129	**1-163-038-00**	**CERAMIC CHIP 0.1 25V**

Ref. No.	Part No.	Description
C130	**1-163-239-00**	**CERAMIC CHIP 33PF 5% 50V**
C131	**1-163-003-00**	**CERAMIC CHIP 330PF 10% 50V**
C132	**1-131-391-00**	**TANTALUM 22 10% 3.15V**
C133	**1-124-442-00**	**ELECT 330 20% 6.3V**
C134	**1-124-471-00**	**ELECT 1000 20% 6.3V**
C135	**1-131-391-00**	**TANTALUM 22 10% 3.15V**
C136	**1-124-471-00**	**ELECT 1000 20% 6.3V**
C137	**1-131-391-00**	**TANTALUM 22 10% 3.15V**
C138	**1-124-471-00**	**ELECT 1000 20% 6.3V**
C139	**1-131-391-00**	**TANTALUM 22 10% 3.15V**
C140	**1-163-251-00**	**CERAMIC CHIP 100PF 5% 50V**
CN1	1-564-005-00	RECEPTACLE, 6P MALE
	1-562-151-00	PLUG HOUSING 6P
	1-564-026-00	PLUG CONTACT
CN2	1-564-007-00	RECEPTACLE, 8P MALE
	1-562-153-00	PLUG HOUSING 8P
	1-564-026-00	PLUG CONTACT
CN3	1-564-005-00	RECEPTACLE, 6P MALE
	1-562-151-00	PLUG HOUSING 6P
	1-564-026-00	PLUG CONTACT
CN4	1-564-001-00	RECEPTACLE, 2P MALE
	1-562-147-00	PLUG HOUSING 2P
	1-564-026-00	PLUG CONTACT
CN5	1-564-001-00	RECEPTACLE, 2P MALE
	1-562-147-00	PLUG HOUSING 2P
	1-564-026-00	PLUG CONTACT
CN6	1-564-001-00	RECEPTACLE, 2P MALE
	1-562-147-00	PLUG HOUSING 2P
	1-564-026-00	PLUG CONTACT
CN7	1-564-001-00	RECEPTACLE, 2P MALE
	1-562-147-00	PLUG HOUSING 2P
	1-564-026-00	PLUG CONTACT
CN8	1-564-001-00	RECEPTACLE, 2P MALE
	1-562-147-00	PLUG HOUSING 2P
	1-564-026-00	PLUG CONTACT
CN9	1-564-001-00	RECEPTACLE, 2P MALE
	1-562-147-00	PLUG HOUSING 2P
	1-564-026-00	PLUG CONTACT
CN10	1-564-001-00	RECEPTACLE, 2P MALE
	1-562-147-00	PLUG HOUSING 2P
	1-564-026-00	PLUG CONTACT
CN11	1-564-002-00	RECEPTACLE, 3P MALE
	1-562-148-00	PLUG HOUSING 3P
	1-564-026-00	PLUG CONTACT
D1	**8-719-101-23**	**1SS123**
D2	**8-719-100-03**	**1S2835**
D3	**8-719-100-03**	**1S2835**
D4	**8-719-106-16**	**RD6.8MB1**
D5	**8-719-101-23**	**1SS123**

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Ref. No.	Part No.	Description
D6	8-719-100-03	1S2835
D7	8-719-100-03	1S2835
D8	8-719-100-03	1S2835
D10	8-719-100-03	1S2835
D11	8-719-100-05	1S2837
D15	8-719-105-57	RD3.9MB1
D16	8-719-105-57	RD3.9MB1
D17	8-719-105-57	RD3.9MB1
D18	8-719-105-57	RD3.9MB1
DL1	1-415-123-00	200nS
IC1	8-759-240-11	TC4011BP: TOSHIBA
IC2	8-759-990-84	TL084CN: TI
IC3	8-759-240-11	TC4011BP: TOSHIBA
IC4	8-759-240-11	TC4011BP: TOSHIBA
IC5	8-759-240-11	TC4011BP: TOSHIBA
IC6	8-759-240-28	TC4028BP: TOSHIBA
IC7	8-759-245-16	TC4516BP: TOSHIBA
IC8	8-759-990-82	TL082CP: TI
L1	1-407-933-00	MICRO 39
L2	1-407-163-XX	MICRO 33
L3	1-407-165-XX	MICRO 47
Q1	8-729-100-66	2SC1623
Q2	8-729-100-66	2SC1623
Q3	8-729-100-66	2SC1623
Q4	8-729-100-66	2SC1623
Q5	8-729-109-44	2SK94
Q6	8-729-175-73	2SC2757
Q7	8-729-100-66	2SC1623
Q8	8-729-122-63	2SA1226
Q9	8-729-100-76	2SA812
Q10	8-729-100-76	2SA812
Q11	8-729-100-66	2SC1623
Q12	8-729-100-66	2SC1623
Q13	8-729-100-76	2SA812
Q14	8-729-100-66	2SC1623
Q15	8-729-100-76	2SA812
Q16	8-729-100-76	2SA812
Q17	8-729-100-76	2SA812
Q18	8-729-100-76	2SA812
Q19	8-729-100-66	2SC1623
Q20	8-729-100-66	2SC1623

Ref. No.	Part No.	Description
Q21	8-729-100-76	2SA812
Q22	8-729-175-73	2SC2757
Q23	8-729-109-44	2SK94
Q24	8-729-109-44	2SK94
Q25	8-729-109-44	2SK94
Q26	8-729-109-44	2SK94
Q27	8-729-109-44	2SK94
Q28	8-729-100-76	2SA812
Q29	8-729-100-66	2SC1623
Q30	8-729-100-66	2SC1623
Q31	8-729-100-76	2SA812
Q32	8-729-100-66	2SC1623
Q33	8-729-109-44	2SK94
Q34	8-729-109-44	2SK94
Q35	8-729-109-44	2SK94
Q36	8-729-122-63	2SA1226
Q37	8-729-122-63	2SA1226
Q38	8-729-100-66	2SC1623
Q39	8-729-100-66	2SC1623
Q40	8-729-122-63	2SA1226
Q41	8-729-100-66	2SC1623
Q42	8-729-100-76	2SA812
Q43	8-729-100-66	2SC1623
Q44	8-729-100-76	2SA812
Q45	8-729-100-66	2SC1623
Q46	8-729-100-66	2SC1623
Q47	8-729-122-63	2SA1226
Q48	8-729-100-66	2SC1623
Q49	8-729-100-76	2SA812
Q50	8-729-100-66	2SC1623
Q51	8-729-100-76	2SA812
Q52	8-729-175-73	2SC2757
Q53	8-729-109-44	2SK94
Q54	8-729-109-44	2SK94
Q55	8-729-109-44	2SK94
Q56	8-729-109-44	2SK94
Q57	8-729-109-44	2SK94
Q58	8-729-100-76	2SA812
Q59	8-729-100-66	2SC1623
Q60	8-729-100-66	2SC1623
Q61	8-729-100-66	2SC1623
Q62	8-729-100-66	2SC1623
Q63	8-729-122-63	2SA1226
Q64	8-729-100-66	2SC1623
Q65	8-729-100-76	2SA812

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Q66	**8-729-100-66**	**2SC1623**
Q67	**8-729-100-76**	**2SA812**
Q68	**8-729-175-73**	**2SC2757**
Q69	**8-729-109-44**	**2SK94**
Q70	**8-729-109-44**	**2SK94**
Q71	**8-729-109-44**	**2SK94**
Q72	**8-729-109-44**	**2SK94**
Q73	**8-729-109-44**	**2SK94**
Q74	**8-729-100-76**	**2SA812**
Q75	**8-729-100-66**	**2SC1623**
Q76	**8-729-100-66**	**2SC1623**
Q77	**8-729-100-66**	**2SC1623**
Q78	**8-729-100-66**	**2SC1623**
Q79	**8-729-122-63**	**2SA1226**
Q80	**8-729-100-66**	**2SC1623**
Q81	**8-729-100-76**	**2SA812**
Q82	**8-729-100-66**	**2SC1623**
Q83	**8-729-100-76**	**2SA812**
Q84	**8-729-175-73**	**2SC2757**
Q85	**8-729-109-44**	**2SK94**
Q86	**8-729-109-44**	**2SK94**
Q87	**8-729-109-44**	**2SK94**
Q88	**8-729-109-44**	**2SK94**
Q89	**8-729-109-44**	**2SK94**
Q90	**8-729-100-76**	**2SA812**
Q91	**8-729-100-66**	**2SC1623**
Q92	**8-729-100-66**	**2SC1623**
Q93	**8-729-100-66**	**2SC1623**
Q94	**8-729-100-66**	**2SC1623**
Q95	**8-729-122-63**	**2SA1226**
Q96	**8-729-100-66**	**2SC1623**
Q97	**8-729-100-76**	**2SA812**
Q98	**8-729-100-66**	**2SC1623**
Q99	**8-729-100-76**	**2SA812**
Q100	**8-729-100-66**	**2SC1623**
Q101	**8-729-175-73**	**2SC2757**
Q102	**8-729-100-66**	**2SC1623**
Q103	**8-729-100-66**	**2SC1623**
Q104	**8-729-100-66**	**2SC1623**
Q105	**8-729-175-73**	**2SC2757**
Q106	**8-729-100-66**	**2SC1623**
Q107	**8-729-175-73**	**2SC2757**
Q108	**8-729-100-66**	**2SC1623**
Q109	**8-729-175-73**	**2SC2757**
Q110	**8-729-100-66**	**2SC1623**

Ref. No.	Part No.	Description
R4	**1-215-421-00**	**METAL 1K 1% 1/6W**
R5	**1-215-451-00**	**METAL 18K 1% 1/6W**
R6	**1-215-453-00**	**METAL 22K 1% 1/6W**
R7	**1-215-396-00**	**METAL 91 1% 1/6W**
R8	**1-215-451-00**	**METAL 18K 1% 1/6W**
R12	**1-215-467-00**	**METAL 82K 1% 1/6W**
R13	**1-215-457-00**	**METAL 33K 1% 1/6W**
R16	**1-215-434-00**	**METAL 3.6K 1% 1/6W**
R17	**1-215-445-00**	**METAL 10K 1% 1/6W**
R24	**1-215-430-00**	**METAL 2.4K 1% 1/6W**
R25	**1-215-423-00**	**METAL 1.2K 1% 1/6W**
R26	**1-215-397-00**	**METAL 100 1% 1/6W**
R27	**1-215-397-00**	**METAL 100 1% 1/6W**
R28	**1-215-433-00**	**METAL 3.3K 1% 1/6W**
R29	**1-215-449-00**	**METAL 15K 1% 1/6W**
R30	**1-215-477-00**	**METAL 220K 1% 1/6W**
R31	**1-215-477-00**	**METAL 220K 1% 1/6W**
R34	**1-215-493-00**	**METAL 1M 1% 1/6W**
R51	**1-215-429-00**	**METAL 2.2K 1% 1/6W**
R53	**1-215-441-00**	**METAL 6.8K 1% 1/6W**
R66	**1-215-391-00**	**METAL 56 1% 1/6W**
R84	**1-215-394-00**	**METAL 75 1% 1/6W**
R87	**1-215-421-00**	**METAL 1K 1% 1/6W**
R88	**1-215-418-00**	**METAL 750 1% 1/6W**
R89	**1-215-386-00**	**METAL 36 1% 1/6W**
R91	**1-215-388-00**	**METAL 43 1% 1/6W**
R92	**1-215-388-00**	**METAL 43 1% 1/6W**
R93	**1-215-388-00**	**METAL 43 1% 1/6W**
R94	**1-215-388-00**	**METAL 43 1% 1/6W**
R99	**1-215-421-00**	**METAL 1K 1% 1/6W**
R100	**1-215-413-00**	**METAL 470 1% 1/6W**
R102	**1-215-421-00**	**METAL 1K 1% 1/6W**
R103	**1-215-413-00**	**METAL 470 1% 1/6W**
R111	**1-215-451-00**	**METAL 18K 1% 1/6W**
R112	**1-215-419-00**	**METAL 820 1% 1/6W**
R113	**1-215-423-00**	**METAL 1.2K 1% 1/6W**
R114	**1-215-442-00**	**METAL 7.5K 1% 1/6W**
R123	**1-215-424-00**	**METAL 1.3K 1% 1/6W**
R124	**1-215-441-00**	**METAL 6.8K 1% 1/6W**
R129	**1-215-394-00**	**METAL 75 1% 1/6W**
R130	**1-215-441-00**	**METAL 6.8K 1% 1/6W**
R131	**1-215-424-00**	**METAL 1.3K 1% 1/6W**
R137	**1-215-394-00**	**METAL 75 1% 1/6W**
R138	**1-215-394-00**	**METAL 75 1% 1/6W**
R141	**1-215-421-00**	**METAL 1K 1% 1/6W**

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R142	**1-215-418-00**	**METAL 750 1% 1/6W**
R143	**1-215-386-00**	**METAL 36 1% 1/6W**
R145	**1-215-388-00**	**METAL 43 1% 1/6W**
R146	**1-215-388-00**	**METAL 43 1% 1/6W**
R147	**1-215-388-00**	**METAL 43 1% 1/6W**
R148	**1-215-388-00**	**METAL 43 1% 1/6W**
R152	**1-215-421-00**	**METAL 1K 1% 1/6W**
R156	**1-215-431-00**	**METAL 2.7K 1% 1/6W**
R157	**1-215-421-00**	**METAL 1K 1% 1/6W**
R158	**1-215-441-00**	**METAL 6.8K 1% 1/6W**
R162	**1-215-421-00**	**METAL 1K 1% 1/6W**
R166	**1-215-394-00**	**METAL 75 1% 1/6W**
R167	**1-215-394-00**	**METAL 75 1% 1/6W**
R170	**1-215-421-00**	**METAL 1K 1% 1/6W**
R171	**1-215-418-00**	**METAL 750 1% 1/6W**
R172	**1-215-386-00**	**METAL 36 1% 1/6W**
R174	**1-215-388-00**	**METAL 43 1% 1/6W**
R175	**1-215-388-00**	**METAL 43 1% 1/6W**
R176	**1-215-388-00**	**METAL 43 1% 1/6W**
R177	**1-215-388-00**	**METAL 43 1% 1/6W**
R181	**1-215-421-00**	**METAL 1K 1% 1/6W**
R182	**1-215-431-00**	**METAL 2.7K 1% 1/6W**
R185	**1-215-421-00**	**METAL 1K 1% 1/6W**
R186	**1-215-431-00**	**METAL 2.7K 1% 1/6W**
R187	**1-215-441-00**	**METAL 6.8K 1% 1/6W**
R197	**1-215-394-00**	**METAL 75 1% 1/6W**
R199	**1-215-421-00**	**METAL 1K 1% 1/6W**
R200	**1-215-418-00**	**METAL 750 1% 1/6W**
R201	**1-215-386-00**	**METAL 36 1% 1/6W**
R203	**1-215-388-00**	**METAL 43 1% 1/6W**
R204	**1-215-388-00**	**METAL 43 1% 1/6W**
R205	**1-215-388-00**	**METAL 43 1% 1/6W**
R206	**1-215-388-00**	**METAL 43 1% 1/6W**
R210	**1-215-421-00**	**METAL 1K 1% 1/6W**
R211	**1-215-423-00**	**METAL 1.2K 1% 1/6W**
R214	**1-215-421-00**	**METAL 1K 1% 1/6W**
R215	**1-215-431-00**	**METAL 2.7K 1% 1/6W**
R216	**1-215-441-00**	**METAL 6.8K 1% 1/6W**
R219	**1-215-425-00**	**METAL 1.5K 1% 1/6W**
R220	**1-215-425-00**	**METAL 1.5K 1% 1/6W**
R224	**1-215-394-00**	**METAL 75 1% 1/6W**
R226	**1-215-433-00**	**METAL 3.3K 1% 1/6W**
R228	**1-215-418-00**	**METAL 750 1% 1/6W**
R232	**1-215-421-00**	**METAL 1K 1% 1/6W**
R236	**1-215-423-00**	**METAL 1.2K 1% 1/6W**
R238	**1-215-421-00**	**METAL 1K 1% 1/6W**
R242	**1-215-423-00**	**METAL 1.2K 1% 1/6W**
R243	**1-215-394-00**	**METAL 75 1% 1/6W**
R245	**1-215-421-00**	**METAL 1K 1% 1/6W**
R249	**1-215-423-00**	**METAL 1.2K 1% 1/6W**
RV1	**1-228-890-00**	**METAL 4.7K**
RV2	**1-228-887-00**	**METAL 470**
RV3	**1-228-888-00**	**METAL 1K**
RV4	**1-228-887-00**	**METAL 470**
RV5	**1-228-887-00**	**METAL 470**
RV6	**1-228-888-00**	**METAL 1K**
RV8	**1-228-888-00**	**METAL 1K**
RV10	**1-228-888-00**	**METAL 1K**

PR-45 BOARD

Ref. No.	Part No.	Description
	A-7511-963-A	MOUNTED CIRCUIT BOARD "PR-45" (NTSC)
	A-7511-964-A	MOUNTED CIRCUIT BOARD "PR-45" (PAL)
C1	**1-123-645-00**	**ELECT 33 20% 10V**
C2	**1-123-618-00**	**ELECT 22 20% 6.3V**
C3	**1-124-139-00**	**ELECT 100 20% 10V**
C4	**1-123-618-00**	**ELECT 22 20% 6.3V**
C7	**1-123-609-00**	**ELECT 0.33 20% 50V**
C8	**1-163-243-00**	**CERAMIC CHIP 47PF 5% 50V**
C9	**1-124-284-00**	**ELECT 10 20% 16V**
C10	**1-163-038-00**	**CERAMIC CHIP 0.1 25V**
C11	**1-163-251-00**	**CERAMIC CHIP 100PF 5% 50V**
C12	**1-123-618-00**	**ELECT 22 20% 6.3V**
C13	**1-123-647-00**	**ELECT 47 20% 6.3V**
C14	**1-124-139-00**	**ELECT 100 20% 10V**
C15	**1-124-139-00**	**ELECT 100 20% 10V**
C16	**1-123-644-00**	**ELECT 22 20% 10V**
C17	**1-123-822-00**	**ELECT 47 20% 10V**
C18	**1-124-139-00**	**ELECT 100 20% 10V**
C19	**1-123-645-00**	**ELECT 33 20% 10V**
C20	**1-123-618-00**	**ELECT 22 20% 6.3V**
C23	**1-123-617-00**	**ELECT 10 20% 16V**
C24	**1-123-645-00**	**ELECT 33 20% 10V**
C25	**1-123-618-00**	**ELECT 22 20% 6.3V**
C27	**1-163-021-00**	**CERAMIC CHIP 0.01 10% 50V**
C29	**1-163-021-00**	**CERAMIC CHIP 0.01 10% 50V**
C31	**1-163-021-00**	**CERAMIC CHIP 0.01 10% 50V**
C32	**1-123-618-00**	**ELECT 22 20% 6.3V**

NOTE:

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Ref. No.	Part No.	Description
C33	1-163-021-00	CERAMIC CHIP 0.01 10% 50V
C34	1-163-021-00	CERAMIC CHIP 0.01 10% 50V
C35	1-163-021-00	CERAMIC CHIP 0.01 10% 50V
C36	1-163-038-00	CERAMIC CHIP 0.1 25V
C37	1-163-021-00	CERAMIC CHIP 0.01 10% 50V
C39	1-163-021-00	CERAMIC CHIP 0.01 10% 50V
C40	1-163-021-00	CERAMIC CHIP 0.01 10% 50V
C41	1-163-038-00	CERAMIC CHIP 0.1 25V
C42	1-163-021-00	CERAMIC CHIP 0.01 10% 50V
C43	1-123-617-00	ELECT 10 20% 16V
C44	1-123-617-00	ELECT 10 20% 16V
C45	1-123-645-00	ELECT 33 20% 10V
C46	1-123-645-00	ELECT 33 20% 10V
C47	1-123-618-00	ELECT 22 20% 6.3V
C49	1-123-617-00	ELECT 10 20% 16V
C51	1-123-617-00	ELECT 10 20% 16V
C52	1-123-617-00	ELECT 10 20% 16V
C53	1-163-034-00	CERAMIC CHIP 0.033 50V
C55	1-163-021-00	CERAMIC CHIP 0.01 10% 50V
C56	1-163-021-00	CERAMIC CHIP 0.01 10% 50V
C58	1-163-021-00	CERAMIC CHIP 0.01 10% 50V
C59	1-123-617-00	ELECT 10 20% 16V
C60	1-163-021-00	CERAMIC CHIP 0.01 10% 50V
C61	1-163-021-00	CERAMIC CHIP 0.01 10% 50V
C62	1-163-005-00	CERAMIC CHIP 470PF 10% 50V
C63	1-163-243-00	CERAMIC CHIP 47PF 5% 50V
C64	1-163-038-00	CERAMIC CHIP 0.1 25V
C65	1-123-617-00	ELECT 10 20% 16V
C66	1-123-617-00	ELECT 10 20% 16V
C67	1-131-350-00	TANTALUM 3.3 10% 35V
C68	1-131-350-00	TANTALUM 3.3 10% 35V
C69	1-163-833-00	CERAMIC CHIP 0.068 25V
C70	1-163-035-00	CERAMIC CHIP 0.047 50V
C71	1-123-645-00	ELECT 33 20% 10V
C72	1-123-618-00	ELECT 22 20% 6.3V
C73	1-123-617-00	ELECT 10 20% 16V
C74	1-163-034-00	CERAMIC CHIP 0.033 50V
C75	1-163-021-00	CERAMIC CHIP 0.01 10% 50V
C77	1-123-617-00	ELECT 10 20% 16V
C79	1-163-021-00	CERAMIC CHIP 0.01 10% 50V
C80	1-163-021-00	CERAMIC CHIP 0.01 10% 50V
C81	1-163-021-00	CERAMIC CHIP 0.01 10% 50V
C82	1-163-021-00	CERAMIC CHIP 0.01 10% 50V
C83	1-123-618-00	ELECT 22 20% 6.3V
C84	1-123-618-00	ELECT 22 20% 6.3V

Ref. No.	Part No.	Description
C85	1-123-645-00	ELECT 33 20% 10V
C86	1-123-611-00	ELECT 1 20% 50V
C88	1-123-617-00	ELECT 10 20% 16V
C90	1-123-609-00	ELECT 0.33 20% 50V
C91	1-163-239-00	CERAMIC CHIP 33PF 5% 50V
C92	1-131-341-00	TANTALUM 0.1 10% 35V
C93	1-131-341-00	TANTALUM 0.1 10% 35V
C94	1-131-369-00	TANTALUM 4.7 10% 16V
C95	1-163-021-00	CERAMIC CHIP 0.01 10% 50V
C96	1-163-007-00	CERAMIC CHIP 680PF 10% 50V
C97	1-163-001-00	CERAMIC CHIP 220PF 10% 50V
C98	1-163-239-00	CERAMIC CHIP 33PF 5% 50V
C99	1-123-645-00	ELECT 33 20% 10V
C100	1-123-618-00	ELECT 22 20% 6.3V
C101	1-123-618-00	ELECT 22 20% 6.3V
C102	1-124-133-00	ELECT 220 20% 6.3V
C103	1-124-271-00	ELECT 1 20% 50V
C104	1-124-271-00	ELECT 1 20% 50V
C105	1-123-617-00	ELECT 10 20% 16V
C106	1-123-617-00	ELECT 10 20% 16V
C107	1-163-038-00	CERAMIC CHIP 0.1 25V
C108	1-163-005-00	CERAMIC CHIP 470PF 10% 50V
C109	1-163-243-00	CERAMIC CHIP 47PF 5% 50V
C110	1-123-645-00	ELECT 33 20% 10V
C111	1-163-251-00	CERAMIC CHIP 100PF 5% 50V
C112	1-163-251-00	CERAMIC CHIP 100PF 5% 50V
C113	1-163-251-00	CERAMIC CHIP 100PF 5% 50V
C114	1-163-007-00	CERAMIC CHIP 680PF 10% 50V
C115	1-163-007-00	CERAMIC CHIP 680PF 10% 50V
C116	1-124-267-00	ELECT (NONPOLAR) 0.1 20% 50V
C117	1-163-038-00	CERAMIC CHIP 0.1 25V
C118	1-163-038-00	CERAMIC CHIP 0.1 25V
C119	1-163-038-00	CERAMIC CHIP 0.1 25V
C120	1-163-038-00	CERAMIC CHIP 0.1 25V
C121	1-163-038-00	CERAMIC CHIP 0.1 25V
C122	1-163-038-00	CERAMIC CHIP 0.1 25V
C123	1-123-645-00	ELECT 33 20% 10V
C124	1-163-038-00	CERAMIC CHIP 0.1 25V
C125	1-123-618-00	ELECT 22 20% 6.3V
C126	1-163-038-00	CERAMIC CHIP 0.1 25V
C127	1-123-645-00	ELECT 33 20% 10V
C128	1-163-038-00	CERAMIC CHIP 0.1 25V
C129	1-123-618-00	ELECT 22 20% 6.3V
C130	1-163-038-00	CERAMIC CHIP 0.1 25V
C131	1-163-038-00	CERAMIC CHIP 0.1 25V

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Ref. No.	Part No.	Description
C132	1-123-618-00	ELECT 22 20% 6.3V
C133	1-123-645-00	ELECT 33 20% 10V
C134	1-163-038-00	CERAMIC CHIP 0.1 25V
C135	1-123-645-00	ELECT 33 20% 10V
C136	1-163-038-00	CERAMIC CHIP 0.1 25V
C137	1-123-618-00	ELECT 22 20% 6.3V
C138	1-163-038-00	CERAMIC CHIP 0.1 25V
C139	1-163-038-00	CERAMIC CHIP 0.1 25V
C140	1-163-038-00	CERAMIC CHIP 0.1 25V
C141	1-163-038-00	CERAMIC CHIP 0.1 25V
C142	1-163-038-00	CERAMIC CHIP 0.1 25V
C143	1-123-618-00	ELECT 22 20% 6.3V
C144	1-123-645-00	ELECT 33 20% 10V
C145	1-163-038-00	CERAMIC CHIP 0.1 25V
C146	1-123-618-00	ELECT 22 20% 6.3V
C147	1-163-038-00	CERAMIC CHIP 0.1 25V
C148	1-163-038-00	CERAMIC CHIP 0.1 25V
C149	1-163-038-00	CERAMIC CHIP 0.1 25V
C150	1-123-645-00	ELECT 33 20% 10V
C151	1-163-038-00	CERAMIC CHIP 0.1 25V
C152	1-123-618-00	ELECT 22 20% 6.3V
C153	1-163-038-00	CERAMIC CHIP 0.1 25V
C154	1-163-038-00	CERAMIC CHIP 0.1 25V
C155	1-163-038-00	CERAMIC CHIP 0.1 25V
C156	1-163-038-00	CERAMIC CHIP 0.1 25V
C157	1-163-038-00	CERAMIC CHIP 0.1 25V
C158	1-163-038-00	CERAMIC CHIP 0.1 25V
C159	1-163-038-00	CERAMIC CHIP 0.1 25V
C160	1-163-001-00	CERAMIC CHIP 220PF 10% 50V
C161	1-163-038-00	CERAMIC CHIP 0.1 25V
C162	1-163-038-00	CERAMIC CHIP 0.1 25V
C163	1-123-645-00	ELECT 33 20% 10V
C164	1-163-038-00	CERAMIC CHIP 0.1 25V
C165	1-123-645-00	ELECT 33 20% 10V
C166	1-163-038-00	CERAMIC CHIP 0.1 25V
C167	1-131-371-00	TANTALUM 10 10% 16V
CN1	1-564-001-00	RECEPTACLE, 2P MALE
	1-562-147-00	PLUG HOUSING 2P
	1-564-026-00	PLUG CONTACT
CN2	1-564-001-00	RECEPTACLE, 2P MALE
	1-562-147-00	PLUG HOUSING 2P
	1-564-026-00	PLUG CONTACT
CN3	1-564-003-00	RECEPTACLE, 4P MALE
	1-562-149-00	PLUG HOUSING 4P
	1-564-026-00	PLUG CONTACT
CN4	1-564-001-00	RECEPTACLE, 2P MALE
	1-562-147-00	PLUG HOUSING 2P
	1-564-026-00	PLUG CONTACT

Ref. No.	Part No.	Description
D1	8-719-105-45	RD3.3MB1
D2	8-719-100-05	1S2837
D3	8-719-100-05	1S2837
D4	8-719-100-05	1S2837
D5	8-719-105-38	RD3.0MB1
D6	8-719-100-05	1S2837
D7	8-719-100-05	1S2837
D8	8-719-100-05	1S2837
D9	8-719-100-05	1S2837
D10	8-719-100-05	1S2837
D11	8-719-815-55	1S1555
D12	8-719-815-55	1S1555
FL1	1-231-354-00	3.58MHz (NTSC)
FL1	1-409-322-00	4.43MHZ (PAL)
IC1	8-751-300-00	CX130: SONY
IC2	8-759-900-64	TL064CN: TI
IC3	8-759-969-13	SN16913P: TI
IC4	8-759-969-13	SN16913P: TI
IC5	8-759-969-13	SN16913P: TI
IC6	8-759-990-82	TL082CP: TI
IC7	8-759-969-13	SN16913P: TI
IC8	8-759-131-11	μPC311C: NEC
IC9	8-759-245-28	TC4528BP: TOSHIBA
IC10	8-759-245-28	TC4528BP: TOSHIBA
IC13	8-759-990-82	TL082Cp: TI
IC14	8-759-245-28	TC4528BP: TOSHIBA
IC15	8-759-245-28	TC4528BP: TOSHIBA
L1	1-408-022-00	MICRO 27 (NTSC)
L1	1-407-922-00	MICRO 22 (PAL)
L2	1-407-923-00	MICRO 47
L3	1-408-022-00	MICRO 27
L3	1-407-922-00	MICRO 22 (PAL)
L4	1-407-169-XX	MICRO 100
L5	1-407-169-XX	MICRO 100
L6	1-407-185-XX	MICRO 3.9 (NTSC)
L6	1-407-183-XX	MICRO 2.7 (PAL)
L7	1-407-923-00	MICRO 47
L8	1-407-163-XX	MICRO 33
L9	1-407-169-XX	MICRO 100
L10	1-407-169-XX	MICRO 100
L11	1-407-185-XX	MICRO 3.9 (NTSC)
L11	1-407-183-XX	MICRO 2.7 (PAL)

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Ref. No.	Part No.	Description
LV1	1-407-573-00	47 (NTSC)
LV1	1-407-572-00	33 (PAL)
LV2	1-407-572-00	33 (NTSC)
LV2	1-407-571-00	22 (PAL)
Q1	8-729-100-66	2SC1623
Q2	8-729-100-66	2SC1623
Q3	8-729-100-66	2SC1623
Q4	8-729-100-76	2SA812
Q5	8-729-100-76	2SA812
Q6	8-729-100-66	2SC1623
Q7	8-729-100-76	2SA812
Q8	8-729-100-66	2SC1623
Q9	8-729-109-44	2SK94
Q10	8-729-100-66	2SC1623
Q11	8-729-100-66	2SC1623
Q12	8-729-100-76	2SA812
Q13	8-729-100-66	2SC1623
Q14	8-729-100-66	2SC1623
Q15	8-729-100-66	2SC1623
Q16	8-729-122-63	2SA1226E4
Q17	8-729-100-66	2SC1623
Q18	8-729-100-76	2SA812
Q19	8-729-100-66	2SC1623
Q20	8-729-100-76	2SA812
Q21	8-729-100-66	2SC1623
Q22	8-729-104-45	2SJ44
Q23	8-729-109-44	2SK94
Q24	8-729-100-66	2SC1623
Q25	8-729-100-66	2SC1623
Q26	8-729-100-66	2SC1623
Q27	8-729-100-66	2SC1623
Q28	8-729-109-44	2SK94
Q29	8-729-104-45	2SJ44
Q30	8-729-100-66	2SC1623
Q31	8-729-100-66	2SC1623
Q32	8-729-109-44	2SK94
Q33	8-729-109-44	2SK94
Q34	8-729-100-66	2SC1623
Q35	8-729-100-66	2SC1623
Q36	8-729-109-44	2SK94
Q37	8-729-100-66	2SC1623
Q38	8-729-100-66	2SC1623
Q39	8-729-100-66	2SC1623
Q40	8-729-100-66	2SC1623
Q41	8-729-109-44	2SK94
Q42	8-729-100-76	2SA812
Q43	8-729-100-66	2SC1623
Q44	8-729-100-66	2SC1623
Q46	8-729-109-44	2SK94
Q47	8-729-100-66	2SC1623
Q48	8-729-100-66	2SC1623
Q49	8-729-100-66	2SC1623
Q50	8-729-100-66	2SC1623
Q51	8-729-100-66	2SC1623
Q52	8-729-100-66	2SC1623
Q53	8-729-100-76	2SA812
Q54	8-729-100-76	2SA812
Q55	8-729-100-66	2SC1623
Q56	8-729-100-76	2SA812
Q57	8-729-100-66	2SC1623
Q58	8-729-100-76	2SA812
Q59	8-729-109-44	2SK94
Q60	8-729-100-66	2SC1623
Q61	8-729-100-66	2SC1623
Q62	8-729-100-76	2SA812
R1	1-215-425-00	METAL 1.5K 1% 1/6W
R2	1-215-432-00	METAL 3K 1% 1/6W
R6	1-215-421-00	METAL 1K 1% 1/6W
R7	1-215-421-00	METAL 1K 1% 1/6W
R23	1-215-435-00	METAL 3.9K 1% 1/6W
R24	1-215-464-00	METAL 62K 1% 1/6W
R26	1-215-437-00	METAL 4.7K 1% 1/6W
R27	1-215-438-00	METAL 5.1K 1% 1/6W
R28	1-215-414-00	METAL 510 1% 1/6W
R29	1-215-437-00	METAL 4.7K 1% 1/6W
R31	1-215-437-00	METAL 4.7K 1% 1/6W
R34	1-215-429-00	METAL 2.2K 1% 1/6W
R38	1-215-429-00	METAL 2.2K 1% 1/6W
R39	1-215-394-00	METAL 75 1% 1/6W
R42	1-215-428-00	METAL 2K 1% 1/6W
R43	1-215-429-00	METAL 2.2K 1% 1/6W
R44	1-215-439-00	METAL 5.6K 1% 1/6W
R54	1-215-410-00	METAL 360 1% 1/6W
R55	1-215-410-00	METAL 360 1% 1/6W
R57	1-215-421-00	METAL 1K 1% 1/6W
R59	1-215-421-00	METAL 1K 1% 1/6W
R60	1-215-437-00	METAL 4.7K 1% 1/6W
R61	1-215-485-00	METAL 470K 1% 1/6W
R62	1-215-485-00	METAL 470K 1% 1/6W
R65	1-215-445-00	METAL 10K 1% 1/6W

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Ref. No.	Part No.	Description
R66	1-215-437-00	METAL 4.7K 1% 1/6W
R67	1-215-421-00	METAL 1K 1% 1/6W
R68	1-215-445-00	METAL 10K 1% 1/6W
R69	1-215-425-00	METAL 1.5K 1% 1/6W
R71	1-215-444-00	METAL 9.1K 1% 1/6W
R72	1-215-424-00	METAL 1.3K 1% 1/6W
R73	1-215-429-00	METAL 2.2K 1% 1/6W
R74	1-215-437-00	METAL 4.7K 1% 1/6W
R75	1-215-445-00	METAL 10K 1% 1/6W
R76	1-215-445-00	METAL 10K 1% 1/6W
R77	1-215-429-00	METAL 2.2K 1% 1/6W
R78	1-215-437-00	METAL 4.7K 1% 1/6W
R79	1-215-445-00	METAL 10K 1% 1/6W
R80	1-215-463-00	METAL 56K 1% 1/6W
R103	1-215-421-00	METAL 1K 1% 1/6W
R104	1-215-469-00	METAL 100K 1% 1/6W
R106	1-215-421-00	METAL 1K 1% 1/6W
R108	1-215-421-00	METAL 1K 1% 1/6W
R110	1-215-433-00	METAL 3.3K 1% 1/6W
R114	1-215-405-00	METAL 220 1% 1/6W
R115	1-215-433-00	METAL 3.3K 1% 1/6W
R118	1-215-417-00	METAL 680 1% 1/6W
R119	1-215-417-00	METAL 680 1% 1/6W
R120	1-215-429-00	METAL 2.2K 1% 1/6W
R130	1-215-401-00	METAL 150 1% 1/6W
R131	1-215-453-00	METAL 22K 1% 1/6W
R136	1-215-413-00	METAL 470 1% 1/6W
R137	1-215-433-00	METAL 3.3K 1% 1/6W
R140	1-215-417-00	METAL 680 1% 1/6W
R158	1-215-437-00	METAL 4.7K 1% 1/6W
R159	1-215-429-00	METAL 2.2K 1% 1/6W
R162	1-215-461-00	METAL 47k 1% 1/6W
R163	1-215-445-00	METAL 10K 1% 1/6W
R164	1-215-453-00	METAL 22K 1% 1/6W
R165	1-215-445-00	METAL 10K 1% 1/6W
R166	1-215-445-00	METAL 10K 1% 1/6W
R167	1-215-441-00	METAL 6.8K 1% 1/6W
R168	1-215-463-00	METAL 56K 1% 1/6W
R170	1-215-421-00	METAL 1K 1% 1/6W
R179	1-215-433-00	METAL 3.3K 1% 1/6W
R180	1-215-417-00	METAL 680 1% 1/6W
R184	1-215-453-00	METAL 22K 1% 1/6W
R185	1-215-445-00	METAL 10K 1% 1/6W
R188	1-215-463-00	METAL 56K 1% 1/6W
R189	1-215-461-00	METAL 47K 1% 1/6W

Ref. No.	Part No.	Description
RV1	1-228-890-00	METAL 4.7K
RV2	1-228-891-00	METAL 10K
RV3	1-228-890-00	METAL 4.7K
RV4	1-228-894-00	METAL 47K
RV5	1-228-892-00	METAL 22K
RV6	1-228-892-00	METAL 22K
RV7	1-228-889-00	METAL 2.2K
RV8	1-228-892-00	METAL 22K
RV9	1-228-892-00	METAL 22K
RV10	1-228-892-00	METAL 22K
RV11	1-228-894-00	METAL 47K
RV12	1-228-892-00	METAL 22K
RV13	1-228-892-00	METAL 22K
RV14	1-228-894-00	METAL 47k
RV15	1-228-889-00	METAL 2.2K
S1	1-554-078-00	SLIDE

PS-27 BOARD

Ref. No.	Part No.	Description
	⚠A-7511-958-A	MOUNTED CIRCUIT BOARD "PS-27" (NTSC)
	⚠A-7511-959-A	MOUNTED CIRCUIT BOARD "PS-27" (PAL)
	1-533-131-00	HOLDER, FUSE
C1	1-161-021-00	CERAMIC 0.047 10% 25V
C2	1-123-617-00	ELECT 10 20% 16V
C3	1-123-647-00	ELECT 47 20% 6.3V
C4	1-124-143-00	ELECT 100 20% 16V
C5	1-124-147-00	ELECT 47 20% 25V
C6	1-161-013-00	CERAMIC 0.01 10% 25V
C7	1-123-821-00	ELECT 47 20% 16V
C8	1-161-013-00	CERAMIC 0.01 10% 25V
C9	1-123-821-00	ELECT 47 20% 16V
C10	1-123-822-00	ELECT 47 20% 10V
C11	1-123-617-00	ELECT 10 20% 16V
C12	1-123-647-00	ELECT 47 20% 6.3V
C13	1-123-822-00	ELECT 47 20% 10V
C14	1-123-617-00	ELECT 10 20% 16V
C15	1-123-647-00	ELECT 47 20% 6.3V

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Ref. No.	Part No.	Description
C16	**1-130-495-00**	**MYLAR 0.1 5% 50V**
C17	**1-130-495-00**	**MYLAR 0.1 5% 50V**
C18	**1-123-898-00**	**ELECT 470 20% 25V**
C19	**1-123-645-00**	**ELECT 33 20% 10V**
C20	**1-161-039-00**	**CERAMIC 0.001 10% 25V**
C21	**1-123-611-00**	**ELECT 1 20% 50V**
C22	**1-161-039-00**	**CERAMIC 0.001 10% 25V**
C23	**1-123-617-00**	**ELECT 10 20% 16V**
C24	**1-161-013-00**	**CERAMIC 0.01 10% 25V**
C25	**1-161-039-00**	**CERAMIC 0.001 10% 25V**
C26	**1-123-819-00**	**ELECT 33 20% 25V**
C27	**1-123-898-00**	**ELECT 470 20% 25V**
C28	**1-161-005-00**	**CERAMIC 0.0022 10% 25V**
C29	**1-123-897-00**	**ELECT 220 20% 16V**
C30	**1-130-495-00**	**MYLAR 0.1 5% 50V**
C31	**1-123-839-00**	**ELECT 1000 20% 16V**
C32	**1-131-360-00**	**TANTALUM 15 20% 25V**
C33	**1-130-495-00**	**MYLAR 0.1 5% 50V**
C34	**1-123-896-00**	**ELECT 100 20% 10V**
C35	**1-130-495-00**	**MYLAR 0.1 5% 50V**
C36	**1-124-142-00**	**ELECT 470 20% 10V**
C37	**1-130-495-00**	**MYLAR 0.1 5% 50V**
C38	**1-123-896-00**	**ELECT 100 20% 10V**
C39	**1-130-495-00**	**MYLAR 0.1 5% 50V**
C40	**1-124-142-00**	**ELECT 470 20% 10V**
C41	**1-130-495-00**	**MYLAR 0.1 5% 50V**
CN1	1-560-359-00	RECEPTACLE, 5P MALE
CN2	1-560-356-00	RECEPTACLE, 2P MALE
	1-561-514-00	PLUG HOUSING 2P
	1-560-372-00	PLUG CONTACT
CN3	1-560-356-00	RECEPTACLE, 2P MALE
	1-561-514-00	PLUG HOUSING 2P
	1-560-372-00	PLUG CONTACT
CN4	1-560-357-00	RECEPTACLE, 3P MALE
	1-561-515-00	PLUG HOUSING 3P
	1-560-372-00	PLUG CONTACT
CN5	1-564-004-00	RECEPTACLE, 5P MALE
	1-562-151-00	PLUG HOUSING 5P
	1-564-026-00	PLUG CONTACT
CN6	1-564-009-00	RECEPTACLE, 10P MALE
	1-562-155-00	PLUG HOUSING 10P
	1-564-026-00	PLUG CONTACT
D1	**8-719-815-55**	**1S1555**
D2	**8-719-815-55**	**1S1555**
D3	**8-719-100-52**	**THYRISTOR 5P2M**
D4	**8-719-102-51**	**1SZ51**
D6	**8-719-100-12**	**RD2.7EB1**

Ref. No.	Part No.	Description
D7	**8-719-815-55**	**1S1555**
D8	**8-719-815-55**	**1S1555**
D9	**8-719-151-07**	**RD5.1EB**
D10	**8-719-151-07**	**RD5.1EB**
D11	**8-719-907-25**	**ERA84-009**
D12	**8-719-907-25**	**ERA84-009**
D13	**8-719-981-01**	**ERA81-004**
D14	**8-719-981-01**	**ERA81-004**
D15	**8-719-981-01**	**ERA81-004**
D16	**8-719-981-01**	**ERA81-004**
⚠ F1	**1-532-536-00**	**GLASS-TUBE 125V 1A (NTSC)**
⚠ F1	**1-532-078-00**	**TIME-LAG 125V 1A (PAL)**
IC1	**8-759-101-21**	**μPC3423C: NEC**
IC2	**8-759-727-03**	**NJM2903D: JRC**
IC3	**8-759-990-84**	**TL084CN: TI**
IC4	**8-759-904-94**	**TL494CN: TI**
L1	**1-421-302-XX**	**LINE FILTER**
L2	**1-408-354-00**	**LH1-221K**
L3	**1-408-354-00**	**LH1-221K**
L4	**1-408-354-00**	**LH1-221K**
L5	**1-408-354-00**	**LH1-221K**
L6	**1-408-354-00**	**LH1-221K**
L7	**1-408-354-00**	**LH1-221K**
Q1	**8-729-178-54**	**2SC2785**
Q2	**8-729-606-32**	**2SC2603**
Q3	**8-729-113-32**	**2SB733**
Q4	**8-729-178-54**	**2SC2785**
Q5	**8-729-113-32**	**2SB733**
Q6	**8-729-178-54**	**2SC2785**
Q7	**8-729-117-54**	**2SA1175**
Q8	**8-729-177-43**	**2SD774**
Q9	**8-729-178-54**	**2SC2785**
Q10	**8-729-117-54**	**2SA1175**
Q11	**8-729-177-43**	**2SD774**
Q12	**8-729-177-43**	**2SD774**

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Ref. No.	Part No.	Description
R11	**1-215-445-00**	**METAL 10K 1% 1/6W**
R12	**1-215-412-00**	**METAL 430 1% 1/6W**
R13	**1-215-452-00**	**METAL 20K 1% 1/6W**
R17	**1-215-427-00**	**METAL 1.8K 1% 1/6W**
R18	**1-215-439-00**	**METAL 5.6K 1% 1/6W**
R22	**1-215-433-00**	**METAL 3.3K 1% 1/6W**
R23	**1-215-438-00**	**METAL 5.1K 1% 1/6W**
R25	**1-215-445-00**	**METAL 10K 1% 1/6W**
R26	**1-215-448-00**	**METAL 13K 1% 1/6W**
R27	**1-217-153-00**	**METAL PLATE 0.47**
R33	**1-215-447-00**	**METAL 12K 1% 1/6W**
R34	**1-215-431-00**	**METAL 2.7K 1% 1/6W**
R45	**1-215-429-00**	**METAL 2.2K 1% 1/6W**
R46	**1-215-445-00**	**METAL 10K 1% 1/6W**
R47	**1-215-445-00**	**METAL 10K 1% 1/6W**
⚠ R49	**1-202-852-00**	**SOLID 4.7 1/4W**
RV1	**1-228-892-00**	**METAL 22K**
RV2	**1-228-888-00**	**METAL 1K**
RV3	**1-228-888-00**	**METAL 1K**
RV4	**1-228-888-00**	**METAL 1K**
RV5	**1-228-890-00**	**METAL 4.7K**
RY1	**1-515-223-00**	**12V 400Ω**
T1	**1-447-085-00**	**DC-DC CONVERTER**

FRAME

	1-516-379-00	**SWITCH "POWER"**
CN1	**1-561-336-00**	**BNC CONNECTOR**
CN2	**1-561-336-00**	**BNC CONNECTOR**
CN3	**1-561-336-00**	**BNC CONNECTOR**
CN4	**1-561-336-00**	**BNC CONNECTOR**
CN5	**1-561-336-00**	**BNC CONNECTOR**
CN6	**1-561-336-00**	**BNC CONNECTOR**
CN7	**1-561-336-00**	**BNC CONNECTOR**
CN8	**1-561-336-00**	**BNC CONNECTOR**
CN9	**1-561-336-00**	**BNC CONNECTOR**
CN10	**1-561-336-00**	**BNC CONNECTOR**

Ref. No.	Part No.	Description
CN11	**1-526-531-00**	**RECEPTACL 4P DIN "TALLY/INCOM"**
CN12	**1-526-531-00**	**RECEPTACL 4P DIN "DC IN"**
CN13	**1-561-320-00**	**RECEPTACL 8P DIN "VF"**
CN14	**1-561-040-00**	**RECEPTACL 14P CONNECTOR FEMALE "CAMERA"**
J1	**1-507-465-00**	**POWER JACK**
PL1	**1-518-327-21**	**6V 35MA**

6-4. PACKING MATERIAL & ACCESSORY (SUPPLIED)

	1-555-533-00	**CABLE SET CCDQ-0.6**
	2-249-307-00	**INDICATOR, REMOTE**
	2-381-922-00	SPACER
	2-381-923-00	INDIVIDUAL CARTON
	2-381-924-00	CUSHION
	3-701-630-00	**BAG, POLY**
	3-701-634-00	**BAG, POLY**
	3-773-443-11	**MANUAL, INSTRUCTION (FOR AEP,UK)**
	3-773-443-21	**MANUAL, INSTRUCTION (FOR U/C)**

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